DUCT & FITTING SYMBOLS

DOUBLE LINE	SINGLE LINE	DESCRIPTION
12x12	12x12	RECTANGULAR DUCT SIZE FIRST NUMBER INDICATES VISIBLE DIMENSION AND SECOND NUMBER INDICATES HIDDEN DIMENSION.
12Ø	12Ø	ROUND DUCT DIAMETER
48x18Ø	48x18Ø	FLAT OVAL DUCT
		SUPPLY DUCT UP OR SECTION
		SUPPLY DUCT DOWN OR SECTION AWAY
		RETURN OR OSA DUCT UP OR SECTION
		RETURN OR OSA DUCT DOWN OR SECTION
		EXHAUST DUCT UP OR SECTION
		EXHAUST DUCT DOWN OR SECTION
		OUTSIDE AIR DUCT UP OR SECTION
		OUTSIDE AIR DUCT DOWN OR SECTION
		TRANSITION
SQR RND		SQUARE TO ROUND TRANSITION
		FLANGED TAKEOFF (RECTANGULAR DUCT)
		LATERAL HIGH EFFICIENCY TAKE-OFF FITTING W/VD (SQR TO RND TAKEOFF FROM RECT. MAIN)
		STRAIGHT SPIN-IN FITTING WITH VOLUME DAMPER (ROUND BRANCH TAKEOFF FROM RECTANGULAR MAIN)
		CONICAL SPIN-IN FITTING WITH VOLUME DAMPER (ROUND BRANCH TAKEOFF FROM RECTANGULAR MAIN)
		CONICAL TAKEOFF (ROUND/OVAL DUCT)
		45° LATERAL TAKEOFF (ROUND/OVAL DUCT)
R		DUCT SLOPE UP (RISE)
D		DUCT SLOPE DOWN (DROP)
		END CAP
		RECTANGULAR MITERED ELBOW W/ TURNING VANES
		RECTANGULAR TEE- 90° MITERED ELBOWS W/ TURNING VANES
R X D, OR H	R X	90° OR 45° LONG RADIUS ELBOW, R=1.5 DIA OR WIDTH (ROUND OR RECTANGULAR DUCT)
		WYE

HVAC SYMBOLS

- DUCT WITH INTERNAL ACOUSTICAL INSULATION
- ACCESS DOOR (AD)
- VOLUME DAMPER
- COMBINATION FIRE/SMOKE DAMPER (FSD)
- VERTICAL FIRE DAMPER (FD)
- VERTICAL FIRE DAMPER (FD)
- MOTORIZED DAMPER (M)
- BACKDRAFT DAMPER (BD)
- OPPOSED BLADE DAMPER
- PARALLEL BLADE DAMPER
- FLEXIBLE DUCT CONNECTION
- FLEXIBLE DUCT
- DIRECTION OF AIRFLOW
- SUPPLY DIFFUSER
- RETURN GRILLE
- EXHAUST GRILLE
- WALL OR DUCT REGISTER OR GRILLE
- OR — LINEAR DIFFUSER
- (F) X-X / XXX — OUTLET / INLET TAG; AIRFLOW, CFM; PREFIX (F) INDICATES A FIRE RATED GRILLE, REGISTER, OR DIFFUSER
- H — HUMIDISTAT OR HUMIDITY SENSOR
- T — THERMOSTAT OR TEMP. SENSOR
- DS — DUCT SMOKE DETECTOR
- SD — SMOKE DETECTOR
- SP — STATIC PRESSURE SENSOR
- CO — CARBON DIOXIDE SENSOR
- ES — EMERGENCY SWITCH

HVAC ABBREVIATIONS

ACFM	ACTUAL AIR - CUBIC FEET PER MINUTE
ACH	AIR CHANGES PER HOUR
AD	ACCESS DOOR
AFF	ABOVE FINISH FLOOR
AHU	AIR HANDLING UNIT
AL	ALUMINUM
AP	ACCESS PANEL
ARCH	ARCHITECT OR ARCHITECTURAL
BD	BACKDRAFT DAMPER
BLDG	BUILDING
BM	BEAM
BOD	BOTTOM OF DUCT
BOP	BOTTOM OF PIPE
BOS	BOTTOM OF STEEL
BTU	BRITISH THERMAL UNIT
CFM	CUBIC FEET PER MINUTE
CLG	CEILING
CONSTR	CONSTRUCTION
CV	CONSTANT VOLUME
DB	DRY BULB
DIA	DIAMETER
DN	DOWN
DWG	DRAWING
DX	DIRECT EXPANSION (REFRIGERATION)
EA	EXHAUST AIR
EAT	ENTERING AIR TEMPERATURE
EC	ELECTRICAL CONTRACTOR
ELEV	ELEVATION
ESP	EXTERNAL STATIC PRESSURE
EWT	ENTERING WATER TEMPERATURE
EXH	EXHAUST
FC	FLEXIBLE CONNECTION
FD	FIRE DAMPER
FE	FIRE EXTINGUISHER
FEC	FIRE EXTINGUISHER CABINET
FLA	FULL LOAD AMPS
FLR	FLOOR
FOB	FLAT ON BOTTOM
FOT	FLAT ON TOP
FPM	FEET PER MINUTE
FSD/CFSD	COMBINATION FIRE/SMOKE DAMPER
GALV	GALVANIZED STEEL
GC	GENERAL CONTRACTOR
GPM	GALLONS PER MINUTE
GRD	GRILLES, REGISTERS, DIFFUSERS
H	HUMIDISTAT
HEPA	HIGH EFFICIENCY PARTICULATE AIR
HP	MOTOR HORSEPOWER
HVAC	HEATING, VENTING AND AIR CONDITIONING
LB(S)	POUND, POUNDS
LAT	LEAVING AIR TEMPERATURE
LWT	LEAVING WATER TEMPERATURE
MA	MIXED AIR
MAX	MAXIMUM
MBH	THOUSAND BTU PER HOUR
MC	MECHANICAL CONTRACTOR
MCA	MINIMUM CIRCUIT AMPACITY
MECH	MECHANICAL
MFR	MANUFACTURER
MIN	MINIMUM
MOCP	MAXIMUM OVERCURRENT PROTECTION
NC	NOISE CRITERIA
NC	NORMALLY CLOSED
NG	NATURAL GAS
NIC	NOT IN CONTRACT
NO	NORMALLY OPEN
NTS	NOT TO SCALE
OBD	OPPOSED BLADE DAMPER
OC	ON CENTER
OA or OSA	OUTSIDE AIR
PBD	PARALLEL BLADE DAMPER
PSI	POUNDS PER SQUARE INCH
PT	PRESSURE/TEMPERATURE PLUG
PVC	POLYVINYL CHLORIDE
RA	RETURN AIR
RECT	RECTANGULAR
RPM	REVOLUTIONS PER MINUTE
REQ'D	REQUIRED
SA	SUPPLY AIR
SCFM	STANDARD AIR - CUBIC FEET PER MINUTE
SF or SQ FT	SQUARE FEET
SIM	SIMILAR
SM	SHEET METAL
SMACNA	SHEET METAL AND AIR CONDITIONING CONTRACTORS NATIONAL ASSOCIATION
SP	STATIC PRESSURE
SPEC	SPECIFICATION OR SPECIFIED
SS	STAINLESS STEEL
STD	STANDARD
T	THERMOSTAT
TC	TEMPERATURE CONTROLS
TEMP	TEMPERATURE
TOS	TOP OF STEEL
TYP	TYPICAL
UNO	UNLESS NOTED OTHERWISE
VAV	VARIABLE AIR VOLUME
VD	VOLUME DAMPER
VFD	VARIABLE FREQUENCY DRIVE
WB	WET BULB

PIPING SYMBOLS

- PIPE DOWN
- PIPE UP
- TEE DOWN
- TEE UP
- ELBOW
- TEE
- CAP
- CONCENTRIC REDUCER/INCREASER
- ECCENTRIC REDUCER/INCREASER
- UNION
- FLANGE
- FULL PORT BALL VALVE
- BUTTERFLY VALVE
- GLOBE VALVE
- GATE VALVE
- PRESSURE REDUCING VALVE
- GAS COCK
- PLUG VALVE
- CONTROL VALVE
- 3-WAY CONTROL VALVE
- 2-WAY MOTORIZED VALVE
- 3-WAY MOTORIZED VALVE
- SOLENOID VALVE
- VALVE IN RISER
- FLOW MEASURING & BALANCING VALVE
- BALANCING VALVE
- COMBINATION BALL VALVE, UNION STRAINER WITH TEMP/PRESS. TEST PORTS & BLONDOWN
- COMBINATION FLOW CONTROL, BALL VALVES, UNION WITH TEMP/PRESS. TEST PORTS
- CHECK VALVE
- DOUBLE CHECK VALVE
- STRAINER
- STRAINER W/BLOWDOWN VALVE & HOSE BIBB CONNECTION
- THERMOMETER
- PRESSURE GAUGE
- PRESSURE GAUGE W/ COCK
- PRESSURE/THERMOMETER PLUG
- GAUGE WELL
- AUTOMATIC AIR VENT (AAV)
- MANUAL AIR VENT (MAV)
- VACUUM AIR VENT (VAV)
- RELIEF VALVE
- FS — FLOW SWITCH
- FM — FLOW METER
- STEAM TRAP
- DIRECTION OF FLOW
- PUMP
- M — WATER METER
- FLEXIBLE BRAIDED HOSE
- NEOPRENE DOUBLE-SPHERE FLEXIBLE PIPE CONNECTOR
- HOSE BIBB/DRAIN VALVE
- PIPE ANCHOR
- PIPE GUIDE
- PIPE EXPANSION JOINT
- CWS — CHILLED WATER SUPPLY
- CWR — CHILLED WATER RETURN
- CTWS — COOLING TOWER WATER SUPPLY
- CTWR — COOLING TOWER WATER RETURN
- CV — CONDENSATE VENT
- CD — CONDENSATE DRAIN
- CDO — CONDENSATE DRAIN OVERFLOW
- D — INDIRECT DRAIN
- HWS — HEATING WATER SUPPLY
- HWR — HEATING WATER RETURN
- LPS — LOW PRESSURE STEAM (<15 PSIG)
- LPC — LOW PRESSURE CONDENSATE
- MPS — MEDIUM PRESSURE STEAM (>15-65 PSIG)
- MPC — MEDIUM PRESSURE CONDENSATE
- PC — PUMPED CONDENSATE
- RL — REFRIGERANT LIQUID LINE
- RS — REFRIGERANT SUCTION LINE

GENERAL SYMBOLS

- (E) <E> — EXISTING
- (N) <N> — NEW
- (NL) <NL> — NEW LOCATION
- (R) <R> — REMOVE
- (REL) <REL> — RELOCATE
- (C) <C> — CAP FOR FUTURE
- POINT OF NEW CONNECTION
- KEYED NOTE
- REVISION NUMBER
- POINT OF CONTINUATION
- EQUIPMENT TAG / EQUIPMENT NUMBER
- SECTION (LETTER) OR DETAIL (NUMERICAL) DESIGNATION / SHEET NUMBER
- SECTION DESIGNATION / SHEET NUMBER
- GENERAL BREAK
- LINE BREAK
- ON DEMOLITION PLANS, INDICATES ITEMS TO BE REMOVED

NOTE: ABBREVIATIONS AND SYMBOLS ARE MARQUESS & ASSOCIATES, INC. STANDARDIZED SYMBOL LEGENDS. AS SUCH, ALL SYMBOLS SHOWN MAY NOT APPEAR ON OR WITHIN THIS SET OF CONTRACT DOCUMENTS.

MECHANICAL DRAWING INDEX

NOTE: All items that require access, such as for operating, cleaning, servicing, maintenance, and calibration, shall be easily and safely accessible by persons standing at floor level, or standing on permanent platforms, without the use of portable ladders. Examples of these items include, but are not limited to: all types of valves, filters and strainers, transmitters, control devices. Prior to commencing installation work, refer conflicts between this requirement and contract drawings to the RE/COTR for resolution.

GENERAL NOTES

1. ALL PIPING AND DUCTS IN FINISHED ROOMS OR SPACES SHALL BE CONCEALED IN A FURRED CHASE OR ABOVE THE SUSPENDED CEILING.

2. ACCESS PANELS ARE REQUIRED FOR ALL VALVES, TRAPS, DAMPERS, CLEANOUTS, CONTROLS, ETC. ACCESS PANELS SHALL BE FURNISHED AND INSTALLED UNDER THE ARCHITECTURAL SPECIFICATIONS.

3. REFER TO ARCHITECTURAL REFLECTED CEILING PLANS FOR EXACT LOCATIONS OF CEILING DIFFUSERS, REGISTERS, AND GRILLES.

4. CONTRACTOR TO SECURE, MAINTAIN, AND PAY FOR ALL REQUIRED LICENSES AND INSPECTIONS FOR DURATION OF WORK UNLESS DIRECTED OTHERWISE.

5. CONTRACTOR IS RESPONSIBLE FOR DISPOSAL OF ALL ITEMS THAT OWNER DOES NOT WISH TO RETAIN FOR FUTURE USE.

6. MECHANICALLY FASTEN CONNECTIONS BETWEEN METAL DUCTS AND THE INNER CORE OF FLEXIBLE DUCTS. ALL JOINTS, LONGITUDINAL AND TRANSVERSE SEAMS, AND CONNECTIONS IN DUCTWORK, SHALL BE SECURELY FASTENED AND SEALED WITH WELDS, GASKETS, MASTICS (ADHESIVES), MASTIC-PLUS-EMBEDDED-FABRIC SYSTEMS, OR TAPES IN ACCORDANCE WITH UL 181A OR UL 181B.

7. ALL DUCTWORK SHALL BE GALVANIZED STEEL, ROUND OR RECTANGULAR. SUPPORT PER SMACNA DUCT CONSTRUCTION STANDARDS AND INSTALL IN CONFORMANCE TO MECHANICAL CODES. FLEXIBLE DUCTS SHALL BE INSULATED NONMETALLIC, FORM "NM-IL", MAXIMUM LENGTH OF 5'-0" AT DIFFUSER OR GRILLE CONNECTION. BUTTERFLY BALANCING DAMPERS WHERE SHOWN OR REQUIRED, ROUND OR RECTANGULAR, GALVANIZED SHEET METAL, WITH EXTERNAL INDICATING QUADRANT AND SETSCREW. PROVIDE TURNING VANES FOR ALL RECTANGULAR ELBOWS.

8. SHEET METAL DUCT SIZES SHOWN ARE NET CLEAR INSIDE DIMENSIONS. WHEN INTERNAL INSULATION IS REQUIRED, DUCT SIZE SHALL BE INCREASED TO PROVIDE NET CLEAR DIMENSIONS INDICATED.

9. ALL SUPPLY AIR DUCTS IN UNCONDITIONED SPACES AND PLENUMS (ABOVE CEILINGS, WITHIN CHASES, SHAFTS, OR MECHANICAL ROOMS) AND WITHIN THE BUILDING ENVELOPE SHALL BE INSULATED WITH 1-1/2" THICK, 3/4 LB. DENSITY, FIBERGLASS DUCT WRAP FACED WITH OUTER FOIL BLANKET, OR MINERAL FIBER BOARD FACED WITH ALL SERVICE JACKET, MINIMUM INSTALLED R-VALUE OF 3.5.

10. ALL OUTSIDE AIR DUCTS IN UNCONDITIONED SPACES AND PLENUMS (ABOVE CEILINGS, WITHIN CHASES, SHAFTS, OR MECHANICAL ROOMS) AND WITHIN THE BUILDING ENVELOPE SHALL BE INSULATED WITH FIBERGLASS DUCT WRAP FACED WITH OUTER FOIL BLANKET OR MINERAL FIBER BOARD FACED WITH ALL SERVICE JACKET, MINIMUM INSTALLED R-VALUE OF 1.9.

11. EXHAUST AIR DUCTWORK ON THE DISCHARGE SIDE OF HEAT EXCHANGERS SHALL BE INSULATED WITH FIBERGLASS DUCT WRAP FACED WITH OUTER FOIL BLANKET OR MINERAL FIBER BOARD FACED WITH ALL SERVICE JACKET, MIN. INSTALLED R-VALUE OF 1.9.

12. RETURN AND EXHAUST AIR DUCTWORK LOCATED WITHIN THE BUILDING ENVELOPE MAY BE UNINSULATED.

13. THE FOLLOWING SHALL BE SEISMICALLY BRACED IN ACCORDANCE WITH THE 2010 OREGON STRUCTURAL SPECIALTY CODE:
- PIPING IN MECHANICAL EQUIPMENT ROOMS LARGER THAN 1" DIAMETER WITH HANGERS LONGER THAN 12".
- ALL OTHER PIPING LARGER THAN 2" DIAMETER WITH HANGERS LONGER THAN 12".
- DUCTWORK WITH CROSS-SECTIONAL AREA 6.0 S.F. OR GREATER SUPPORTED WITH HANGERS LONGER THAN 12".
- COMPONENTS INSTALLED IN-LINE WITH DUCTWORK WEIGHING MORE THAN 75 POUNDS.
- SUSPENDED EQUIPMENT 20 LBS. OR GREATER.
- FLOOR MOUNTED EQUIPMENT 400 LBS. OR GREATER.

CONTRACTOR SHALL SUBMIT CALCULATIONS AND SHOP DRAWINGS PER SPECIFICATION SECTION 130541 FOR ALL APPLICABLE SYSTEMS.

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REVISIONS	DATE

REGISTERED PROFESSIONAL ENGINEER 16,570 OREGON JANUARY 18, 1983 OSCAR J. ZUNIGA JR. RENEWAL DATE: 6-30-15

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SOUTHERN OREGON REHABILITATION CENTER & CLINICS

8495 CRATER LAKE HIGHWAY
WHITE CITY, OREGON

DRAWING TITLE:

MECHANICAL LEGEND

FULLY SPRINKLERED FACILITY

PROJECT TITLE
REPLACE DOM BLDG. 203

DRAWN BY:	DATE:	DRAWING NO.:
JDG	4 AUGUST 2014	M1.1
CHECK BY:	VA PROJECT NO.:	DWG. 1 OF 22
OJZ	692-339	

US DEPARTMENT OF VETERANS AFFAIRS

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GENERAL NOTES

A. EXISTING PIPING IS SLOPED IN DIRECTION OF FLOW. SLOPE ALL TEMPORARY PIPING IN DIRECTION OF FLOW, 1% MIN. SLOPE.

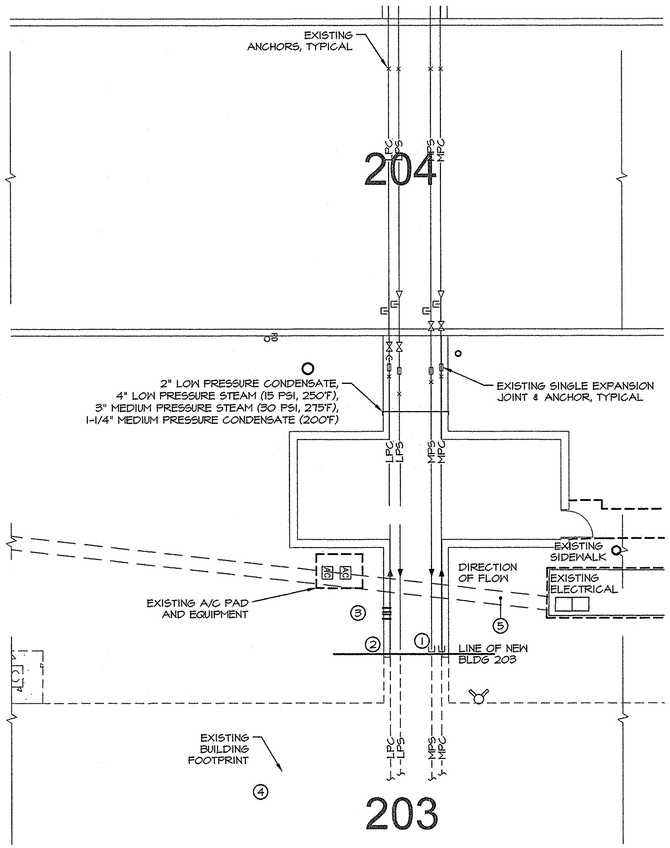
B. ALL PIPING SHALL BE SLEEVED AND SEALED THROUGH ANY STRUCTURE OR CONCRETE.

C. COORDINATE EXACT LOCATION OF TIE-IN POINTS WITH NEW CONSTRUCTION, SEE SHEET M3.0.

D. UNLESS ABATED AND APPROVED FOR ENTRY, THE EXISTING UTILITY TUNNEL/CRAWLSPACE OF BUILDING 203 SHOULD BE CONSIDERED AN ASBESTOS CONTAMINATED AREA. ONLY PROPERLY TRAINED INDIVIDUALS SHOULD ENTER THE CRAWLSPACE. PROPER PERSONAL PROTECTIVE EQUIPMENT IS REQUIRED.

KEYED NOTES

1. CUT AND CAP EXISTING 3" MEDIUM PRESSURE STEAM AND 1-1/4" MEDIUM PRESSURE CONDENSATE LINES WEST OF LINE OF NEW BUILDING..
2. CUT EXISTING 4" LOW PRESSURE STEAM AND 2" LOW PRESSURE CONDENSATE LINES WEST OF LINE OF NEW BUILDING. PREPARE FOR CONNECTION OF NEW LINES INTO BASEMENT MECHANICAL ROOM.
3. CORE DRILL EXISTING TUNNEL WALL BELOW GRADE FOR INSERTION OF NEW INSULATED CHILLED WATER LINES FROM CH-203.
4. ALL EXISTING MECHANICAL IN 203 SHALL BE DEMOLISHED.
5. APPROXIMATE LOCATION OF UNDERGROUND ELECTRICAL DUCT BANK. FIELD LOCATE BY HAND DIGGING PRIOR TO DOING WORK IN THE AREA.



1 UTILITY TUNNEL PLAN - DEMOLITION
SCALE: 3/32" = 1'-0"

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REGISTERED PROFESSIONAL ENGINEER
16,570
OREGON
EXPIRATION DATE: 6-30-15
MAY 18, 1982
OSCAR J. ZUNIGA, JR.

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DRAWING TITLE:
MECHANICAL DEMOLITION PLANS

FULLY SPRINKLERED FACILITY

PROJECT TITLE
REPLACE DOM BLDG. 203

DRAWN BY:	DATE:	DRAWING NO.:
JDG	4 AUGUST 2014	M2.0
CHECK BY:	VA PROJECT NO.:	DWG. 2 OF 22
OJZ	692-339	

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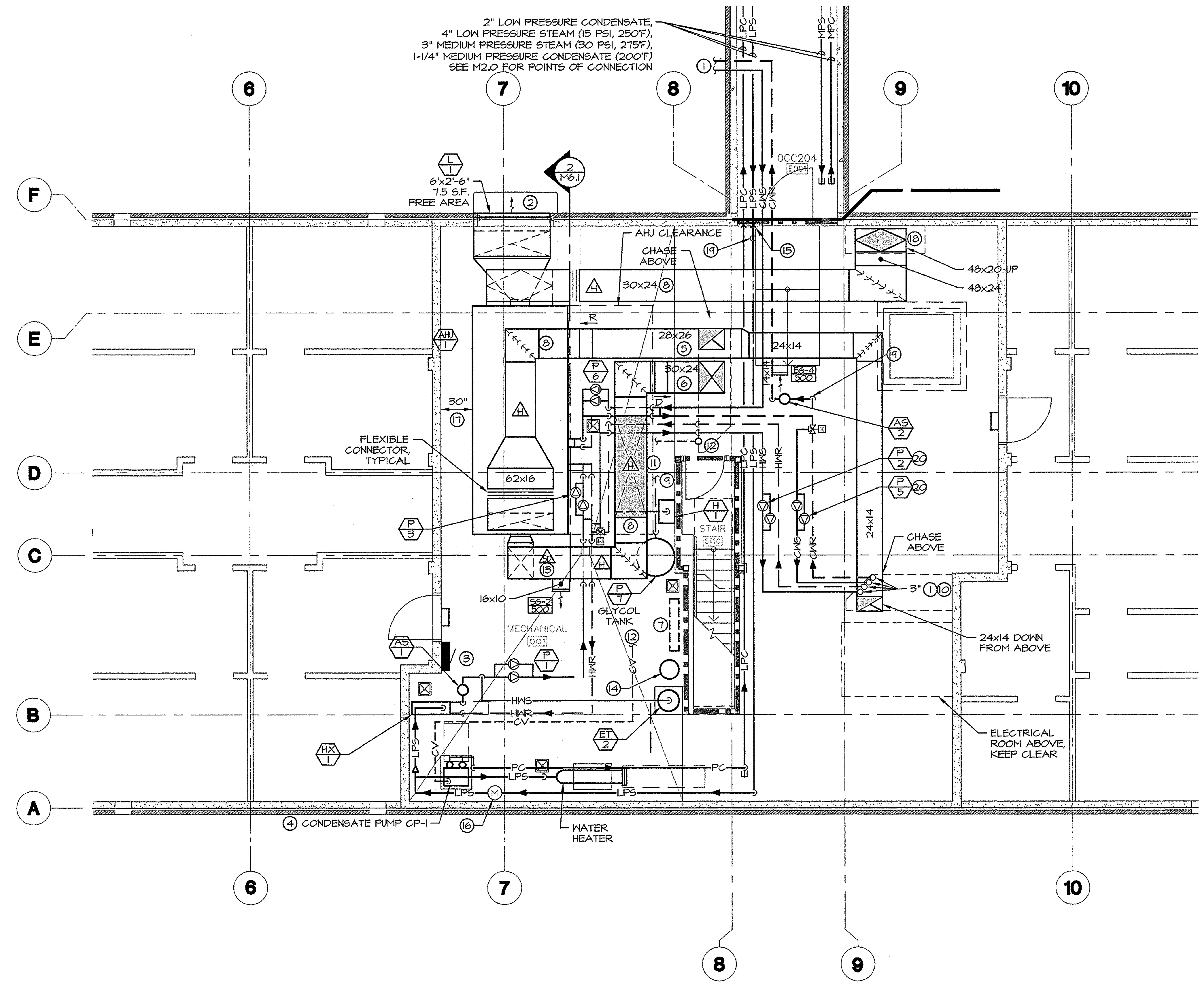

MECHANICAL BASEMENT PLAN

SCALE: 3/16" = 1'-0"

GENERAL NOTES

A. EXISTING STEAM PIPING IS SLOPED IN DIRECTION OF FLOW. SLOPE NEW STEAM PIPING UNIFORMLY IN DIRECTION OF FLOW.

B. FIRE CAULK ALL PIPE PENETRATIONS THROUGH FIRE-RATED WALLS, SEE ARCHITECTURAL, 8/M6.3, AND SPECIFICATIONS SECTION 078400. IN ADDITION, THE FOLLOWING PIPE & DUCT PENETRATIONS SHALL BE FIRESTOPPED:
- FIRE AND SMOKE BARRIERS (SEE ARCH)
- FIRE PARTITIONS (SEE ARCH)
- CORRIDOR WALLS (SEE ARCH)
- FLOORS & CEILINGS
- SHAFT WALLS & FLOORS

C. ALL PIPING SHALL BE SLEEVED AND SEALED THROUGH ANY STRUCTURE OR CONCRETE.

D. PROVIDE PIPE GUIDES ON PIPING BETWEEN ANCHORS.

E. UNLESS ABATED AND APPROVED FOR ENTRY, THE EXISTING UTILITY TUNNEL/CRAWLSPACE SHOULD BE CONSIDERED AN ASBESTOS CONTAMINATED AREA. ONLY PROPERLY TRAINED INDIVIDUALS SHOULD ENTER THE CRAWLSPACE. PROPER PERSONAL PROTECTIVE EQUIPMENT IS REQUIRED.

F. SEE SHEET M6.2 FOR PIPING SECTIONS.

G. INSTALL HUMIDITY SENSORS (PROVIDED BY TEMPERATURE CONTROLS) IN MAIN OUTSIDE AIR, SUPPLY AIR, AND RETURN AIR DUCTS. JOHNSON CONTROLS MODEL HE-67XX DUCT PROBE SERIES, OR EQUAL.

H. CONTRACTOR SHALL DESIGN ALL PIPE ANCHORAGE DETAILS. PROVIDE SHOP DRAWINGS AND STAMPED CALCULATIONS BY LICENSED STRUCTURAL ENGINEER THAT INCLUDES ATTACHMENTS OF PIPING TO STRUCTURE FOR REVIEW.

I. USE ECCENTRIC REDUCERS FOR ALL STEAM AND CONDENSATE PIPING.

KEYED NOTES

(1) CHILLED WATER PIPING FROM CH-203, SEE M3.5 FOR CONTINUATION.

(2) LOUVER TO BE PARTIALLY LOCATED WITHIN WELL, SEE ARCHITECTURAL. LOUVER FURNISHED AND INSTALLED BY MECHANICAL.

(3) TEMPERATURE CONTROLS PANEL, BY JCI.

(4) SEE 3/M6.4 FOR CONDENSATE PUMP INSTALLATION.

(5) 24X20 EXHAUST AIR UP. OFFSET HORIZONTALLY IN THE VERTICAL SHAFT AS REQUIRED, SEE SHEET M3.1.

(6) 30X24 SUPPLY AIR DOWN FROM ABOVE. OFFSET HORIZONTALLY IN THE VERTICAL SHAFT AS REQUIRED, SEE SHEET M3.1.

(7) MAKE-UP WATER ASSEMBLY, SEE 8/M6.5.

(8) ROUTE DUCTS TIGHT TO STRUCTURE.

(9) CONNECT GLYCOL TANK LINE TO AIR SEPARATOR INLET SIDE. SEE PIPING SCHEMATIC 2/M6.6

(10) PROVIDE SCALE POCKET AT BOTTOM OF HEATING AND CHILLED WATER RISERS.

(11) DUCT SECTION WITH HUMIDIFIER SHALL BE STAINLESS STEEL (APPROXIMATELY 9' LENGTH). SEE 3/M6.3 FOR HUMIDIFIER INSTALLATION. COORDINATE WITH PLUMBING LOCATE HUMIDIFIER PROBE WITHIN MAIN SUPPLY AIR DUCTWORK 3' DOWNSTREAM OF TRANSITION. LENGTH OF STRAIGHT DUCT DOWNSTREAM OF HUMIDIFIER TO BE MAXIMIZED (6' MINIMUM).

(12) ROUTE 4" SAFETY VENT FROM 2" CONDENSATE VENT FROM CONDENSATE PUMP TO CHASE WEST OF STAIR. INSULATE WITH 1" THICK FIBERGLASS. SEE SHEET M3.5 FOR CONTINUATION.

(13) INSTALL DUCT SMOKE DETECTOR (PROVIDED BY FIRE ALARM CONTRACTOR) IN MAIN SUPPLY AIR DUCT. AHU-1 SHALL TURN OFF AND OSA DAMPER SHALL CLOSE UPON SMOKE DETECTION OR SIGNAL FROM FIRE ALARM SYSTEM.

(14) CHEMICAL FEEDER, SEE 6/M6.5.

(15) ANCHOR PIPING AT NEW WALL. PIPING MAY BE ANCHORED TO SIDEWALLS JUST WEST OF GRIDLINE F.

(16) P&I STEAM METER ON 4" LOW PRESSURE STEAM PIPE, INTEGRATE WITH METASYS, SEE SPECIFICATION SECTION 251010. LENGTH OF STRAIGHT PIPE BEFORE AND AFTER METER SHALL MEET MANUFACTURER'S INSTALLATION INSTRUCTIONS.

(17) LOCATE AIR HANDLER 30" FROM WALL.

(18) INSTALL DRAIN AT BOTTOM OF OSA DUCT, SEE P3.0.

(19) PROVIDE AND INSTALL DRIP LEG ON LPS, SEE DETAIL 6/M6.4. ROUTE 3/4" LPC TO CP-1. USE INVERTED BUCKET STEAM TRAPS.

(20) LOCATE PUMPS P-2 AND P-5 ON WALL SO THEY CAN BE READILY ACCESSED FOR MAINTENANCE AND REPLACEMENT.

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REVISIONS	DATE

REGISTERED PROFESSIONAL ENGINEER 16,570 RENEW DATE: 6-30-16 OREGON MAY 18, 1993 OSCAR J. ZUNIGA JR.

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WHITE CITY, OREGON

DRAWING TITLE: MECHANICAL BASEMENT PLAN

FULLY SPRINKLERED FACILITY

PROJECT TITLE: REPLACE DOM BLDG. 203

DRAWN BY:	DATE:	DRAWING NO.:
JDG	4 AUGUST 2014	M3.0
CHECK BY:	VA PROJECT NO.:	DWG. 3 OF 22
OJZ	692-339	

US DEPARTMENT OF VETERANS AFFAIRS

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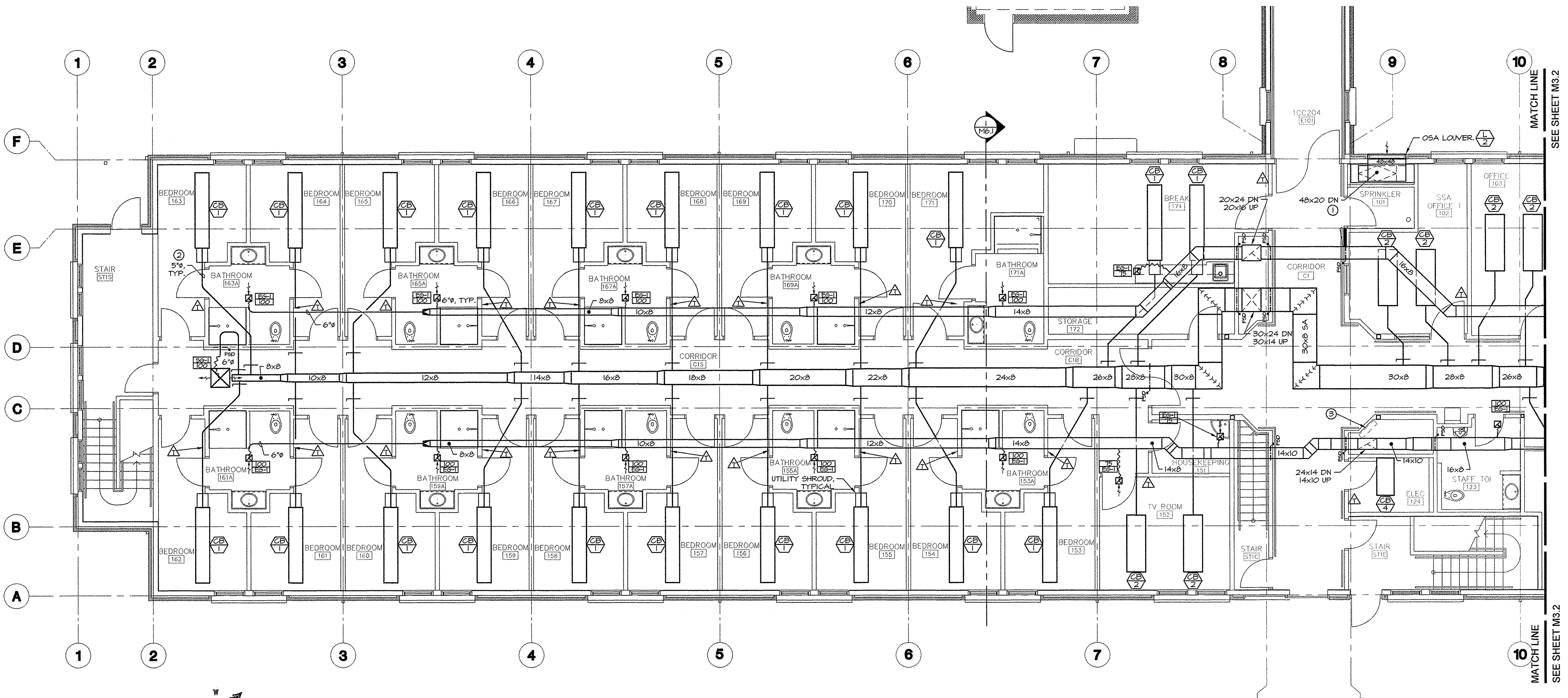
GENERAL NOTES

A. FIRE CAULK ALL PIPE PENETRATIONS THROUGH FIRE-RATED WALLS, SEE ARCHITECTURAL, 8/M6.3, AND SPECIFICATIONS SECTION 078400. IN ADDITION, THE FOLLOWING PIPE & DUCT PENETRATIONS SHALL BE FIRESTOPPED:
- -FIRE AND SMOKE BARRIERS (SEE ARCH)
- -FIRE PARTITIONS (SEE ARCH)
- -CORRIDOR WALLS (SEE ARCH)
- -FLOORS & CEILINGS
- -SHAFT WALLS & FLOORS

B. DUCT ROUTING IS SCHEMATIC. ADDITIONAL OFFSETS MAY BE REQUIRED TO ROUTE DUCTWORK AROUND STRUCTURAL MEMBERS, LIGHT FIXTURES, FIRE SPRINKLER, HYDRONIC, AND PLUMBING PIPING, ELECTRICAL CONDUIT, OR OTHER OBSTACLES AS THE INTERSTITIAL SPACE ABOVE THE CEILING IS VERY LIMITED IN SOME AREAS. COORDINATE DUCT INSTALLATION WITH ALL OTHER TRADES INCLUDING PLUMBING, FIRE PROTECTION, AND ELECTRICAL.

KEYED NOTES

1. OFFSET OSA DUCT HORIZONTALLY SOUTH 6" BEFORE FLOOR PENETRATION TO ALLOW ROOM FOR PIPING BELOW, SEE SHEET M3.0.
2. CONTRACTOR'S OPTION TO USE INSULATED FLEXIBLE DUCT AT CONNECTION TO CHILLED BEAM, 4' MAXIMUM.
3. SPACE FOR PIPING, KEEP CLEAR.



HVAC 1ST FLOOR PLAN - SOUTH
SCALE: 3/16" = 1'-0"

MAI Project Number: 13-1130
P: 541-772-7115
F: 541-779-4079
1120 East Jackson
PO Box 490
Medford, OR, 97501

REVISIONS	DATE

REGISTERED PROFESSIONAL ENGINEER 16,570 OREGON MAY 18, 1993 OSCAR J. ZUNIGA JR. RENEW DATE: 6-30-16

kistler+small+white architects

RAYMOND KISTLER, ARCHITECT
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DEPARTMENT OF VETERANS AFFAIRS
SOUTHERN OREGON REHABILITATION CENTER & CLINICS
8495 CRATER LAKE HIGHWAY
WHITE CITY, OREGON

DRAWING TITLE:
HVAC 1ST FLOOR PLAN - SOUTH

FULLY SPRINKLERED FACILITY

PROJECT TITLE: REPLACE DOM BLDG. 203
DRAWN BY: JDG
DATE: 4 AUGUST 2014
CHECK BY: OJZ
VA PROJECT NO.: 692-339
DRAWING NO.: M3.1
DWG. 4 OF 22

US DEPARTMENT OF VETERANS AFFAIRS

Jul 31, 2014 - 2:27pm
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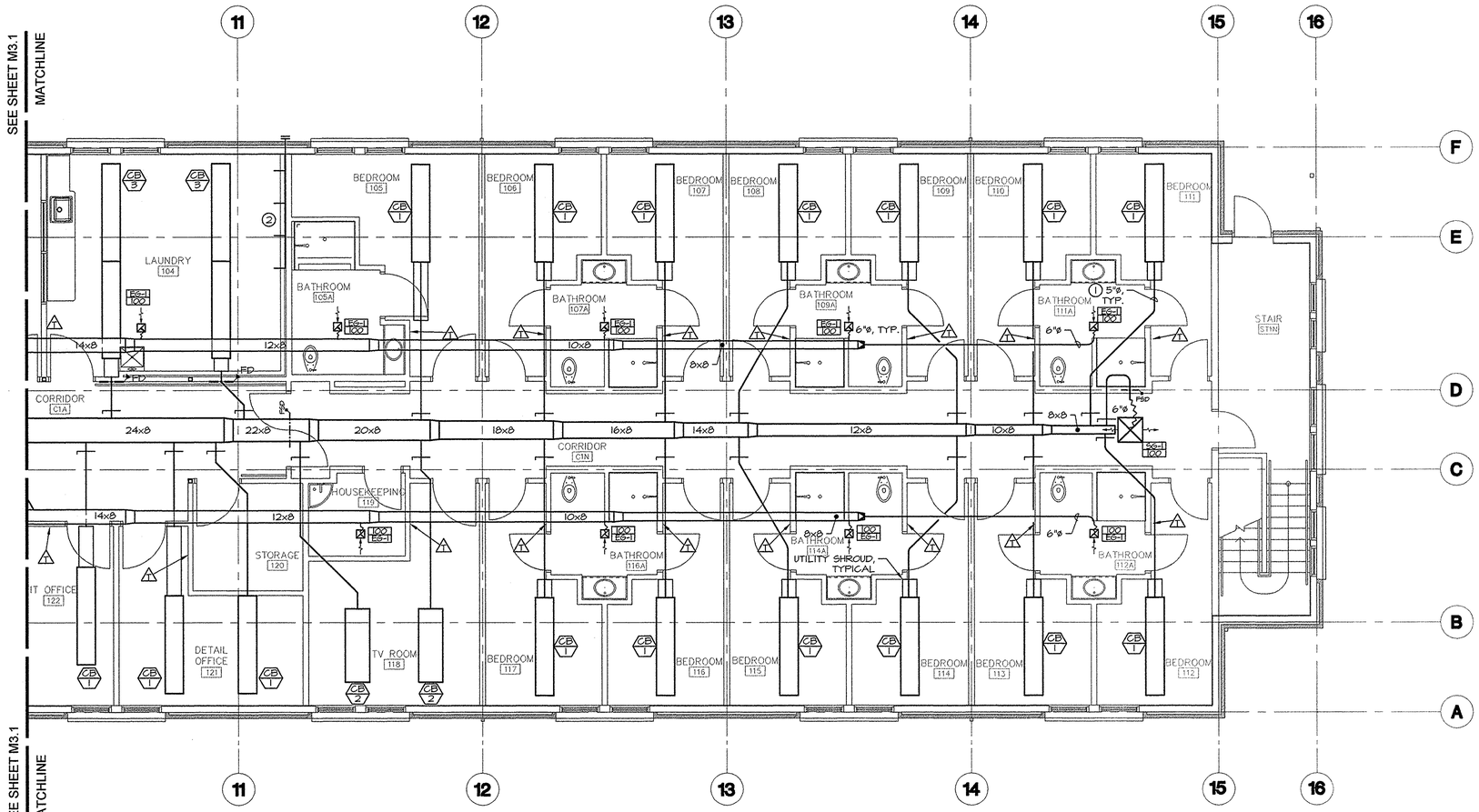
GENERAL NOTES

A. FIRE CAULK ALL PIPE PENETRATIONS THROUGH FIRE-RATED WALLS, SEE ARCHITECTURAL, B/M6.3, AND SPECIFICATIONS SECTION 078400. IN ADDITION, THE FOLLOWING PIPE & DUCT PENETRATIONS SHALL BE FIRESTOPPED:
   -FIRE AND SMOKE BARRIERS (SEE ARCH)
   -FIRE PARTITIONS (SEE ARCH)
   -CORRIDOR WALLS (SEE ARCH)
   -FLOORS & CEILINGS
   -SHAFT WALLS & FLOORS

B. DUCT ROUTING IS SCHEMATIC. ADDITIONAL OFFSETS MAY BE REQUIRED TO ROUTE DUCTWORK AROUND STRUCTURAL MEMBERS, LIGHT FIXTURES, FIRE SPRINKLER, HYDRONIC, AND PLUMBING PIPING, ELECTRICAL CONDUIT, OR OTHER OBSTACLES AS THE INTERSTITIAL SPACE ABOVE THE CEILING IS VERY LIMITED IN SOME AREAS. COORDINATE DUCT INSTALLATION WITH ALL OTHER TRADES INCLUDING PLUMBING, FIRE PROTECTION, AND ELECTRICAL.

KEYED NOTES

1. CONTRACTOR'S OPTION TO USE INSULATED FLEXIBLE DUCT AT CONNECTION TO CHILLED BEAM, 4' MAXIMUM.
2. PROVIDE INDIVIDUAL 4" ROUND, GALVANIZED METAL DRYER VENT DUCTS FROM EACH DRYER LOCATION TO BUILDING EXTERIOR. PROVIDE PREFABRICATED METAL WALL CAPS WITH BACKDRAFT DAMPERS.



W S N E TRUE NORTH

1 HVAC 1ST FLOOR PLAN - NORTH
SCALE: 3/16" = 1'-0"

MAI Project Number: 13-1130
MARQUESS & ASSOCIATES INC
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Medford, OR, 97501

REVISIONS	DATE

REGISTERED PROFESSIONAL ENGINEER
16,570
OREGON
DECEMBER 18, 1992
OSCAR J. ZUNIGA JR.
EXPIRES: 6-30-15

kistler + small + white architects
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8495 CRATER LAKE HIGHWAY
WHITE CITY, OREGON

DRAWING TITLE:
HVAC 1ST FLOOR PLAN - NORTH
FULLY SPRINKLERED FACILITY

PROJECT TITLE
REPLACE DOM BLDG. 203

DRAWN BY:	DATE:	DRAWING NO.:
JDG	4 AUGUST 2014	M3.2
CHECK BY:	VA PROJECT NO.:	DWG. 5 OF 22
OJZ	692-339	

US DEPARTMENT OF VETERANS AFFAIRS

Jul 31, 2014 - 2:27pm
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GENERAL NOTES

A. SEE SHEET M3.9 FOR OTHER MECHANICAL EQUIPMENT ABOVE THE SECOND FLOOR CEILING AND IN THE CATWALK ABOVE.

B. FIRE CAULK ALL PIPE PENETRATIONS THROUGH FIRE-RATED WALLS, SEE ARCHITECTURAL, 8/M6.3, AND SPECIFICATIONS SECTION 078400. IN ADDITION, THE FOLLOWING PIPE & DUCT PENETRATIONS SHALL BE FIRESTOPPED:
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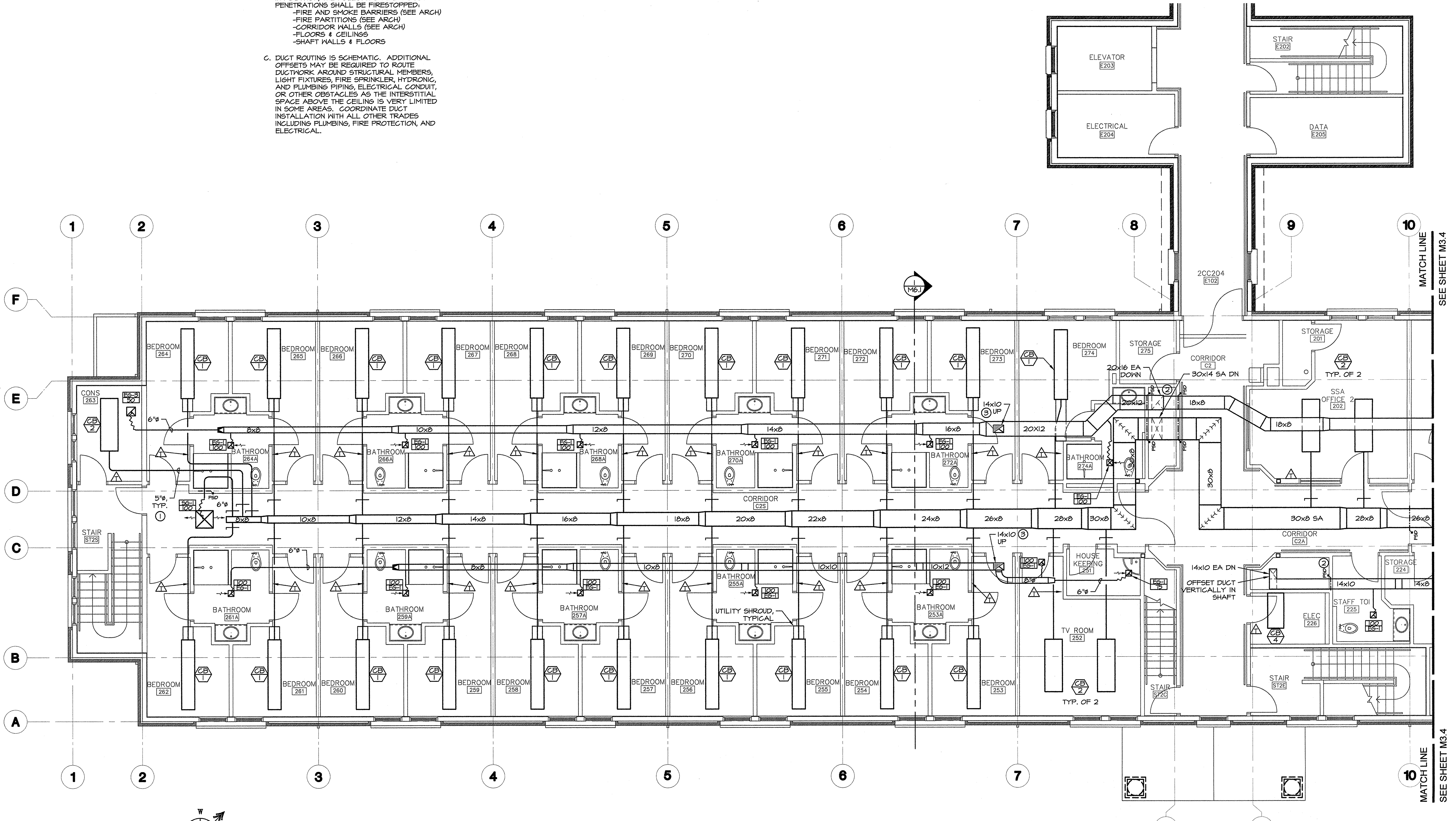
KEYED NOTES

1. CONTRACTOR'S OPTION TO USE INSULATED FLEXIBLE DUCT AT CONNECTION TO CHILLED BEAM, 4' MAXIMUM.
2. LOCATE FIRE-SMOKE DAMPER AT TOP OF SHAFT IN ATTIC.
3. SEE M3.9 FOR CONTINUATION.



1 **HVAC 2ND FLOOR PLAN - SOUTH**
SCALE: 3/16" = 1'-0"

MAI Project Number: 13-1130
MARQUESS & ASSOCIATES INC
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PO Box 490
Medford, OR, 97501

REVISIONS	DATE

REGISTERED PROFESSIONAL ENGINEER 16,570 OREGON MAY 18, 1993 OSCAR J. ZUNIGA JR.
RENEWS: JUNE 30, 2016

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8495 CRATER LAKE HIGHWAY
WHITE CITY, OREGON

DRAWING TITLE:
HVAC 2ND FLOOR PLAN - SOUTH

FULLY SPRINKLERED FACILITY

PROJECT TITLE		
REPLACE DOM BLDG. 203		
DRAWN BY: JDG	DATE: 4 AUGUST 2014	DRAWING NO.: M3.3
CHECK BY: OJZ	VA PROJECT NO.: 692-339	DWG. 6 OF 22

US DEPARTMENT OF VETERANS AFFAIRS

Aug 26, 2014 - 8:44am
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GENERAL NOTES

A. SEE SHEET M3.10 FOR OTHER MECHANICAL EQUIPMENT ABOVE THE SECOND FLOOR CEILING AND IN THE CATWALK ABOVE.

B. FIRE CAULK ALL PIPE PENETRATIONS THROUGH FIRE-RATED WALLS, SEE ARCHITECTURAL, 8/M6.3, AND SPECIFICATIONS SECTION 078400. IN ADDITION, THE FOLLOWING PIPE & DUCT PENETRATIONS SHALL BE FIRESTOPPED:
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KEYED NOTES

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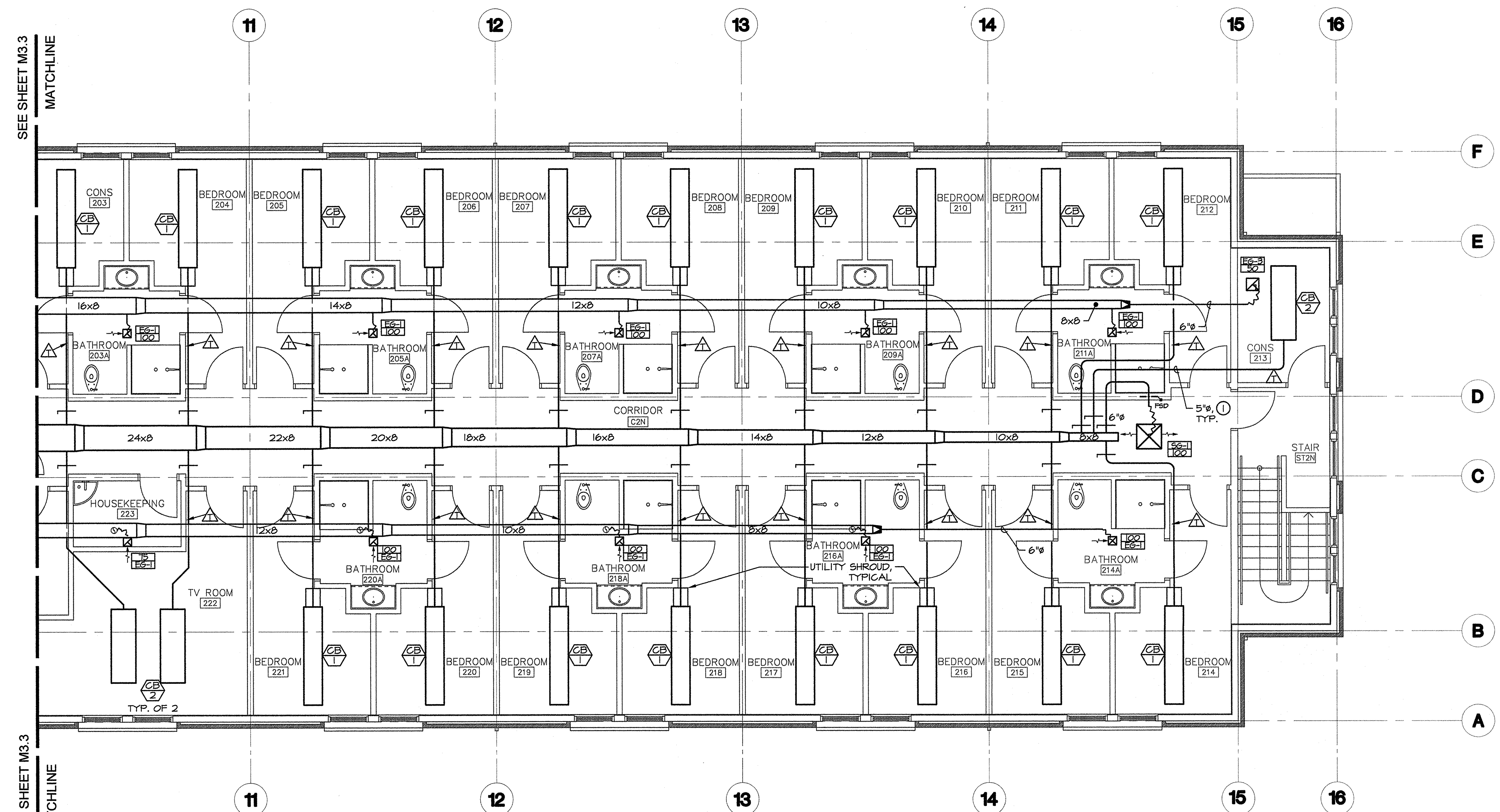

W
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TRUE NORTH

(1) **HVAC 2ND FLOOR PLAN - NORTH**
SCALE: 3/16" = 1'-0"

MAI Project Number: 13-1130
MARQUESS & ASSOCIATES INC
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Medford, OR, 97501

REVISIONS	DATE

REGISTERED PROFESSIONAL ENGINEER 16,570 OREGON MAY 18, 1993 OSCAR J. ZUNIGA JR.
RENEWS: JUNE 30, 2016

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DEPARTMENT OF VETERANS AFFAIRS
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8495 CRATER LAKE HIGHWAY
WHITE CITY, OREGON

DRAWING TITLE:
HVAC 2ND FLOOR PLAN - NORTH

FULLY SPRINKLERED FACILITY

PROJECT TITLE
REPLACE DOM BLDG. 203

DRAWN BY:	DATE:	DRAWING NO.:
JDG	4 AUGUST 2014	M3.4
CHECK BY: OJZ	VA PROJECT NO.: 692-339	DWG. 7 OF 22

US DEPARTMENT OF VETERANS AFFAIRS

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GENERAL NOTES

A. FIRE CAULK ALL PIPE PENETRATIONS THROUGH FIRE-RATED WALLS, SEE ARCHITECTURAL, 8/M6.3, AND SPECIFICATIONS SECTION 078400. IN ADDITION, THE FOLLOWING PIPE & DUCT PENETRATIONS SHALL BE FIRESTOPPED:
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   -SHAFT WALLS & FLOORS

B. CONTRACTOR SHALL COORDINATE ROUTING AND SPACE REQUIREMENTS OF PIPING WITH STRUCTURAL MEMBERS AND ALL OTHER TRADES INCLUDING HVAC, PLUMBING, FIRE PROTECTION, ELECTRICAL, AND COMMUNICATIONS/DATA.

C. SEE 2/M6.5 FOR CHILLED BEAM PIPING INSTALLATION.

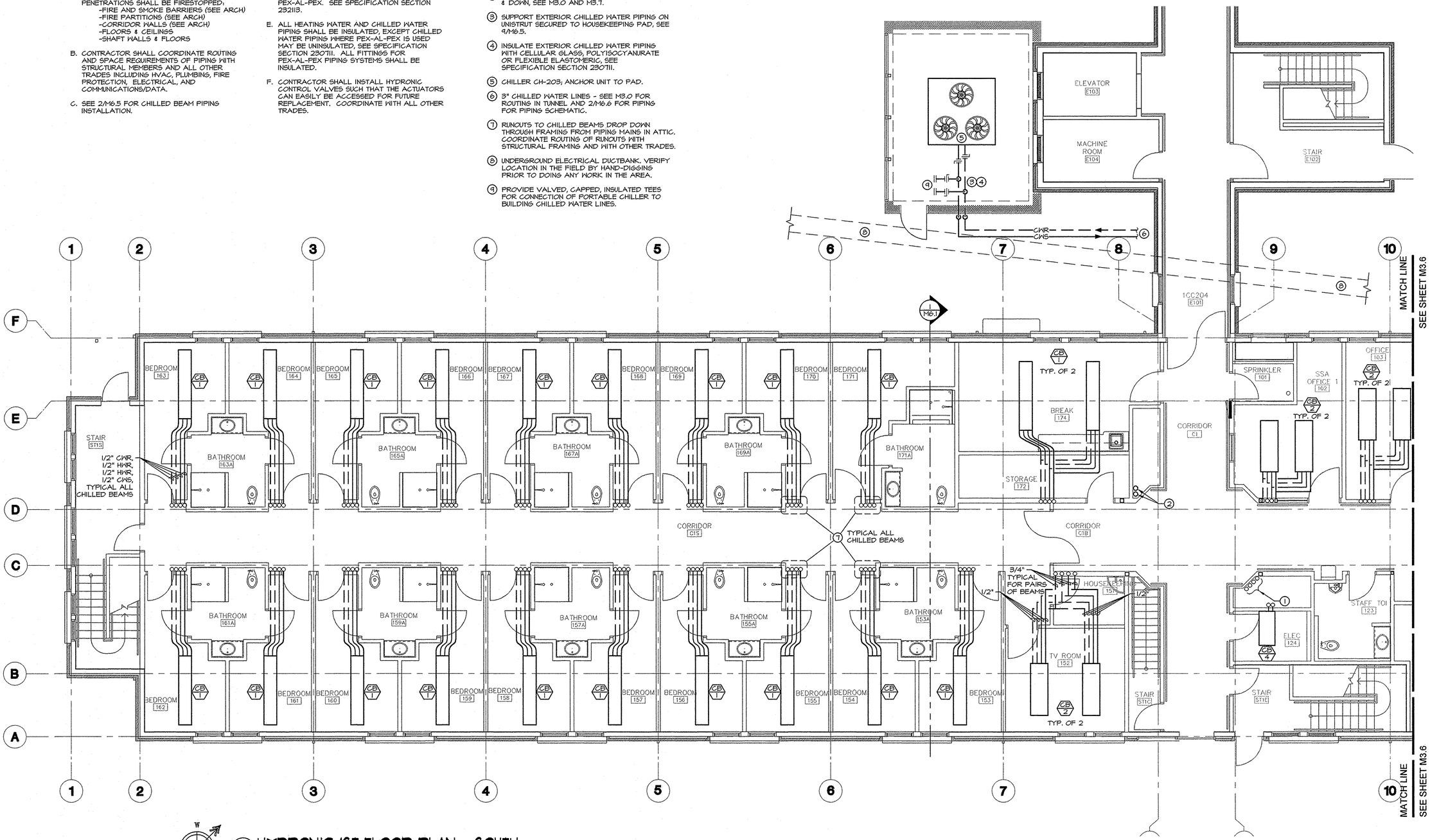
D. HEATING WATER AND CHILLED WATER PIPING TO BE TYPE 'L' COPPER OR SCHEDULE 40 STEEL. RUNOUTS TO INDIVIDUAL CHILLED BEAMS MAY BE TYPE 'L' COPPER OR PEX-AL-PEX. SEE SPECIFICATION SECTION 232113.

E. ALL HEATING WATER AND CHILLED WATER PIPING SHALL BE INSULATED, EXCEPT CHILLED WATER PIPING WHERE PEX-AL-PEX IS USED MAY BE UNINSULATED, SEE SPECIFICATION SECTION 230711. ALL FITTINGS FOR PEX-AL-PEX PIPING SYSTEMS SHALL BE INSULATED.

F. CONTRACTOR SHALL INSTALL HYDRONIC CONTROL VALVES SUCH THAT THE ACTUATORS CAN EASILY BE ACCESSED FOR FUTURE REPLACEMENT. COORDINATE WITH ALL OTHER TRADES.

KEYED NOTES

1. 3" UP AND DOWN, SEE M3.0 AND M3.7 FOR CONTINUATION.
2. 4" SAFETY VENT AND 2" CONDENSATE VENT UP & DOWN, SEE M3.0 AND M3.7.
3. SUPPORT EXTERIOR CHILLED WATER PIPING ON UNISTRUT SECURED TO HOUSEKEEPING PAD, SEE 9/M6.5.
4. INSULATE EXTERIOR CHILLED WATER PIPING WITH CELLULAR GLASS, POLYISOCYANURATE OR FLEXIBLE ELASTOMERIC, SEE SPECIFICATION SECTION 230711.
5. CHILLER CH-203; ANCHOR UNIT TO PAD.
6. 3" CHILLED WATER LINES - SEE M3.0 FOR ROUTING IN TUNNEL AND 2/M6.6 FOR PIPING FOR PIPING SCHEMATIC.
7. RUNOUTS TO CHILLED BEAMS DROP DOWN THROUGH FRAMING FROM PIPING MAINS IN ATTIC. COORDINATE ROUTING OF RUNOUTS WITH STRUCTURAL FRAMING AND WITH OTHER TRADES.
8. UNDERGROUND ELECTRICAL DUCTBANK. VERIFY LOCATION IN THE FIELD BY HAND-DIGGING PRIOR TO DOING ANY WORK IN THE AREA.
9. PROVIDE VALVED, CAPPED, INSULATED TEES FOR CONNECTION OF PORTABLE CHILLER TO BUILDING CHILLED WATER LINES.



1 HYDRONIC 1ST FLOOR PLAN - SOUTH

SCALE: 3/16" = 1'-0"

MAI Project Number: 13-1130
MARQUESS & ASSOCIATES INC
P: 541-772-7115
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PO Box 490
Medford, OR, 97501

REVISIONS	DATE

REGISTERED PROFESSIONAL ENGINEER 16,570 RENEWAL DATE: 6-30-15 OREGON JULY 18, 1995 OSCAR J. ZUNIGA JR.

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DEPARTMENT OF VETERANS AFFAIRS

SOUTHERN OREGON REHABILITATION CENTER & CLINICS

8495 CRATER LAKE HIGHWAY
WHITE CITY, OREGON

DRAWING TITLE: HYDRONIC 1ST FLOOR PLAN - SOUTH

FULLY SPRINKLERED FACILITY

PROJECT TITLE: REPLACE DOM BLDG. 203

DRAWN BY:	DATE:	DRAWING NO.:
JDG	4 AUGUST 2014	M3.5
CHECK BY:	VA PROJECT NO.:	DWG. 8 OF 22
OJZ	692-339	

US DEPARTMENT OF VETERANS AFFAIRS

Jul 31, 2014 - 2:30pm

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GENERAL NOTES

A. FIRE CAULK ALL PIPE PENETRATIONS THROUGH FIRE-RATED WALLS, SEE ARCHITECTURAL, 8/M6.3, AND SPECIFICATIONS SECTION 078400. IN ADDITION, THE FOLLOWING PIPE & DUCT PENETRATIONS SHALL BE FIRESTOPPED:
   -FIRE AND SMOKE BARRIERS (SEE ARCH)
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   -SHAFT WALLS & FLOORS

B. CONTRACTOR SHALL COORDINATE ROUTING AND SPACE REQUIREMENTS OF PIPING WITH STRUCTURAL MEMBERS AND ALL OTHER TRADES INCLUDING HVAC, PLUMBING, FIRE PROTECTION, ELECTRICAL, AND COMMUNICATIONS/DATA.

C. SEE 2/M6.5 FOR CHILLED BEAM PIPING INSTALLATION.

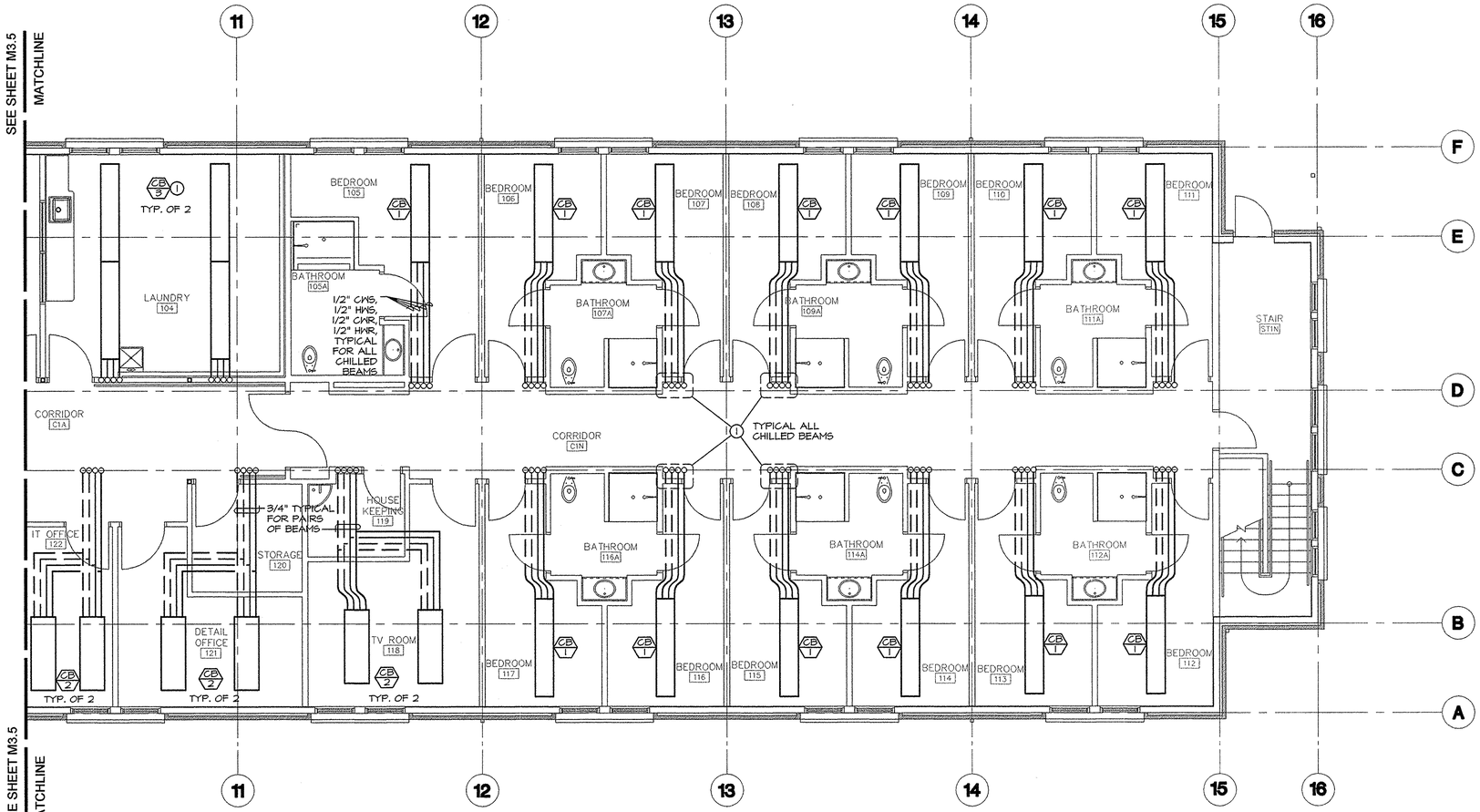
D. HEATING WATER AND CHILLED WATER PIPING TO BE TYPE 'L' COPPER OR SCHEDULE 40 STEEL. RUNOUTS TO INDIVIDUAL CHILLED BEAMS MAY BE TYPE 'L' COPPER OR PEX-AL-PEX. SEE SPECIFICATION SECTION 232113.

E. ALL HEATING WATER AND CHILLED WATER PIPING SHALL BE INSULATED, EXCEPT CHILLED WATER PIPING WHERE PEX-AL-PEX IS USED MAY BE UNINSULATED, SEE SPECIFICATION SECTION 230711. ALL FITTINGS FOR PEX-AL-PEX PIPING SYSTEMS SHALL BE INSULATED.

F. CONTRACTOR SHALL INSTALL HYDRONIC CONTROL VALVES SUCH THAT THE ACTUATORS CAN EASILY BE ACCESSED FOR FUTURE REPLACEMENT. COORDINATE WITH ALL OTHER TRADES.

KEYED NOTES

(1) RUNOUTS TO CHILLED BEAMS DROP DOWN THROUGH FRAMING FROM PIPING MAINS IN ATTIC. COORDINATE ROUTING OF RUNOUTS WITH STRUCTURAL FRAMING AND WITH OTHER TRADES.



1 HYDRONIC 1ST FLOOR PLAN - NORTH
SCALE: 3/16" = 1'-0"

MAI Project Number: 13-1130

MARQUESS & ASSOCIATES INC
P: 541-772-7115
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Medford, OR, 97501

REVISIONS	DATE

REGISTERED PROFESSIONAL ENGINEER 16,570 RENEWAL DATE: 6-30-15 OREGON MAY 18, 1982 OSCAR J. ZUNIGA JR.

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DEPARTMENT OF VETERANS AFFAIRS

SOUTHERN OREGON REHABILITATION CENTER & CLINICS

8495 CRATER LAKE HIGHWAY
WHITE CITY, OREGON

DRAWING TITLE:
HYDRONIC 1ST FLOOR PLAN - NORTH

FULLY SPRINKLERED FACILITY

PROJECT TITLE
REPLACE DOM BLDG. 203

DRAWN BY:	DATE:	DRAWING NO.:
JDG	4 AUGUST 2014	M3.6
CHECK BY:	VA PROJECT NO.:	DWG. 9 OF 22
OJZ	692-339	

US DEPARTMENT OF VETERANS AFFAIRS

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Jul 31, 2014 - 2:39pm

GENERAL NOTES

A. FIRE CAULK ALL PIPE PENETRATIONS THROUGH FIRE-RATED WALLS, SEE ARCHITECTURAL, 8/M6.3, AND SPECIFICATIONS SECTION 078400. IN ADDITION, THE FOLLOWING PIPE & DUCT PENETRATIONS SHALL BE FIRESTOPPED:
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C. SEE 2/M6.5 FOR CHILLED BEAM PIPING INSTALLATION.

D. HEATING WATER AND CHILLED WATER PIPING TO BE TYPE 'L' COPPER OR SCHEDULE 40 STEEL. RUNOUTS TO INDIVIDUAL CHILLED BEAMS MAY BE TYPE 'L' COPPER OR PEX-AL-PEX. SEE SPECIFICATION SECTION 232113.

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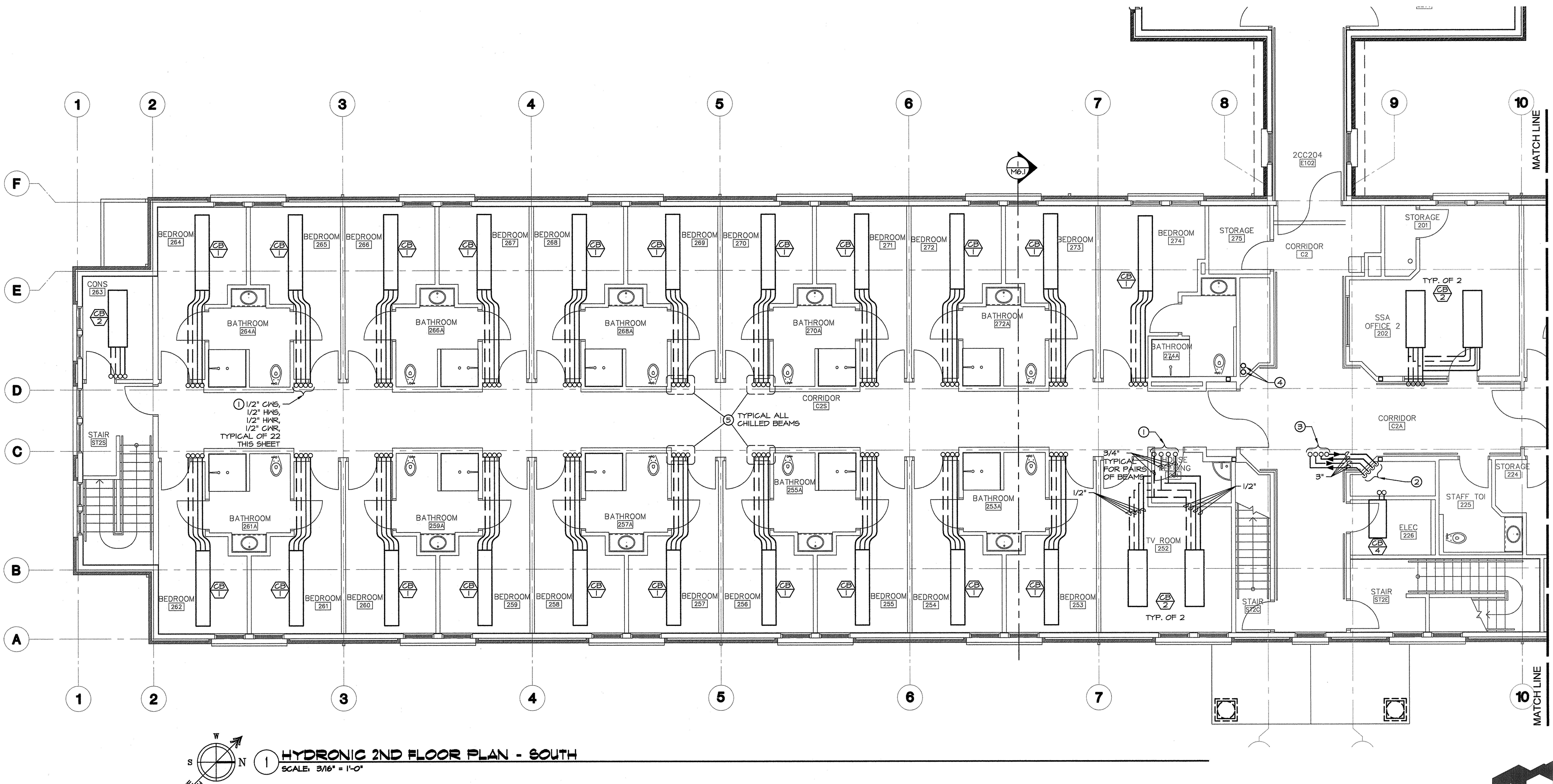
KEYED NOTES

1. SEE M3.9 FOR CONTINUATION, TYPICAL.
2. 3" DOWN. SEE M3.5 FOR CONTINUATION.
3. 3" UP. SEE M3.9 FOR CONTINUATION.
4. 4" SAFETY VENT AND 2" CONDENSATE VENT UP & DOWN, SEE M3.5 AND M3.9.
5. RUNOUTS TO CHILLED BEAMS DROP DOWN THROUGH FRAMING FROM PIPING MAINS IN ATTIC. COORDINATE ROUTING OF RUNOUTS WITH STRUCTURAL FRAMING AND WITH OTHER TRADES.



1 HYDRONIC 2ND FLOOR PLAN - SOUTH
SCALE: 3/16" = 1'-0"

MAI Project Number: 13-1130

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REVISIONS	DATE

REGISTERED PROFESSIONAL ENGINEER 16,570 OREGON MAY 18, 1993 OSCAR J. ZUNIGA JR. RENEWS: JUNE 30, 2016

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WHITE CITY, OREGON

DRAWING TITLE: HYDRONIC 2ND FLOOR PLAN - SOUTH

FULLY SPRINKLERED FACILITY

PROJECT TITLE		
REPLACE DOM BLDG. 203		
DRAWN BY: JDG	DATE: 4 AUGUST 2014	DRAWING NO.: M3.7
CHECK BY: OJZ	VA PROJECT NO.: 692-339	DWG.10 OF 22

US DEPARTMENT OF VETERANS AFFAIRS

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GENERAL NOTES

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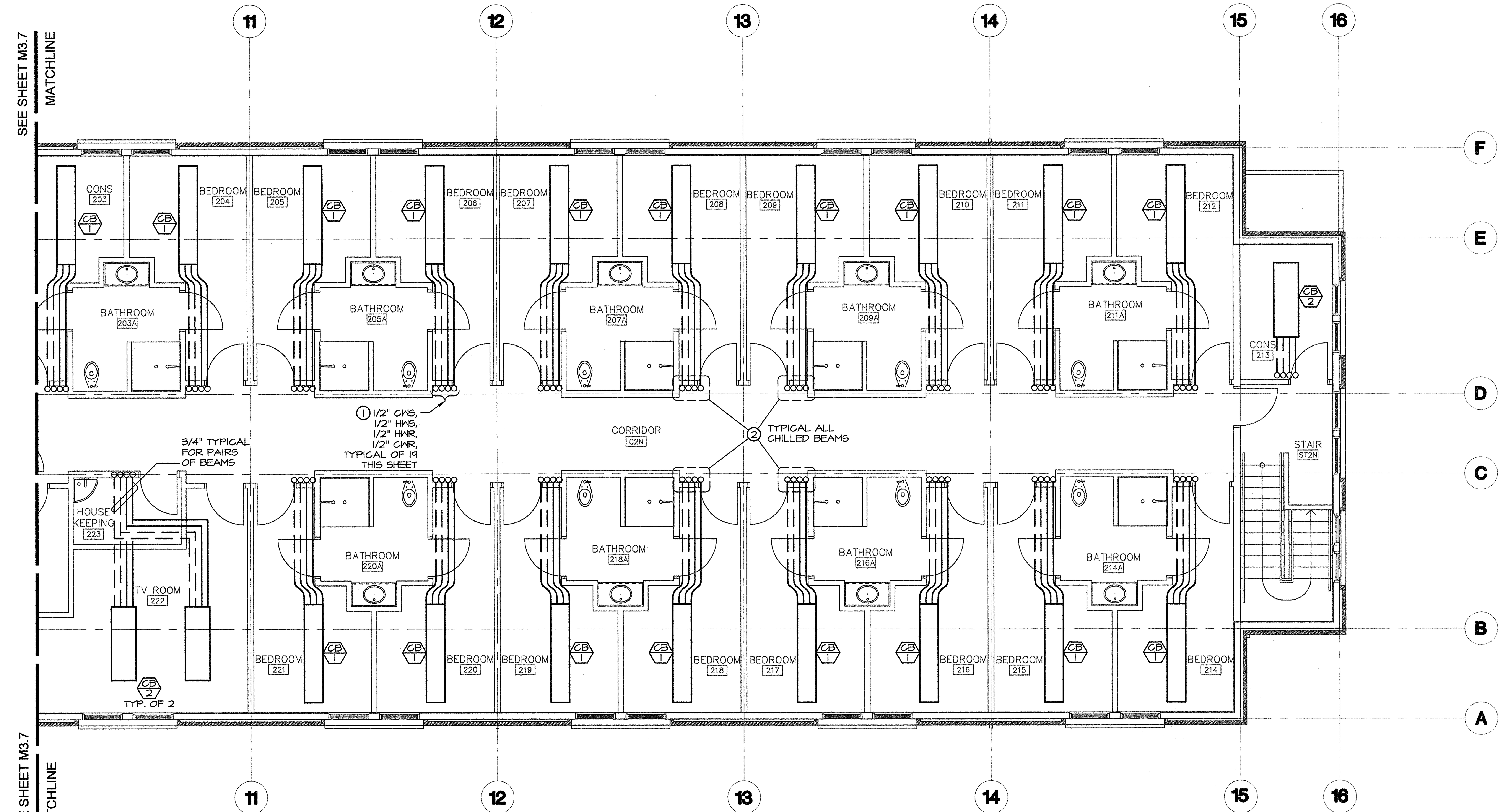

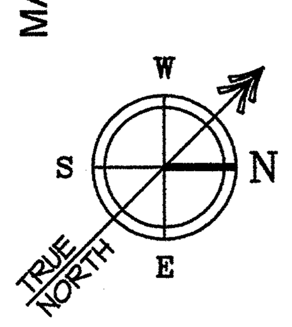

1 HYDRONIC 2ND FLOOR PLAN - NORTH
SCALE: 3/16" = 1'-0"

MAI Project Number: 13-1130

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FULLY SPRINKLERED FACILITY

PROJECT TITLE: REPLACE DOM BLDG. 203

DRAWN BY: JDG
DATE: 4 AUGUST 2014
CHECK BY: OJZ
VA PROJECT NO.: 692-339
DRAWING NO.: M3.8
DWG. 11 OF 22

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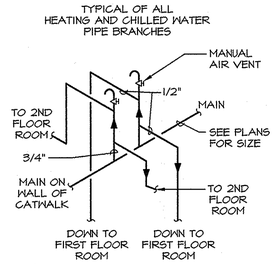
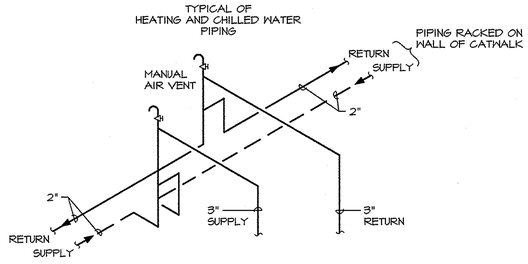


ATTIC PIPING BRANCH

2 SCALE: NONE



ATTIC WING PIPING BRANCH

3 SCALE: NONE

GENERAL NOTES

A. FIRE CAULK ALL PIPE PENETRATIONS THROUGH FIRE-RATED WALLS, SEE ARCHITECTURAL, 9/M6.3, AND SPECIFICATIONS SECTION 078400. IN ADDITION, THE FOLLOWING PIPE & DUCT PENETRATIONS SHALL BE FIRESTOPPED:
   -FIRE AND SMOKE BARRIERS (SEE ARCH)
   -FIRE PARTITIONS (SEE ARCH)
   -CORRIDOR WALLS (SEE ARCH)
   -FLOORS & CEILINGS
   -SHAFT WALLS & FLOORS

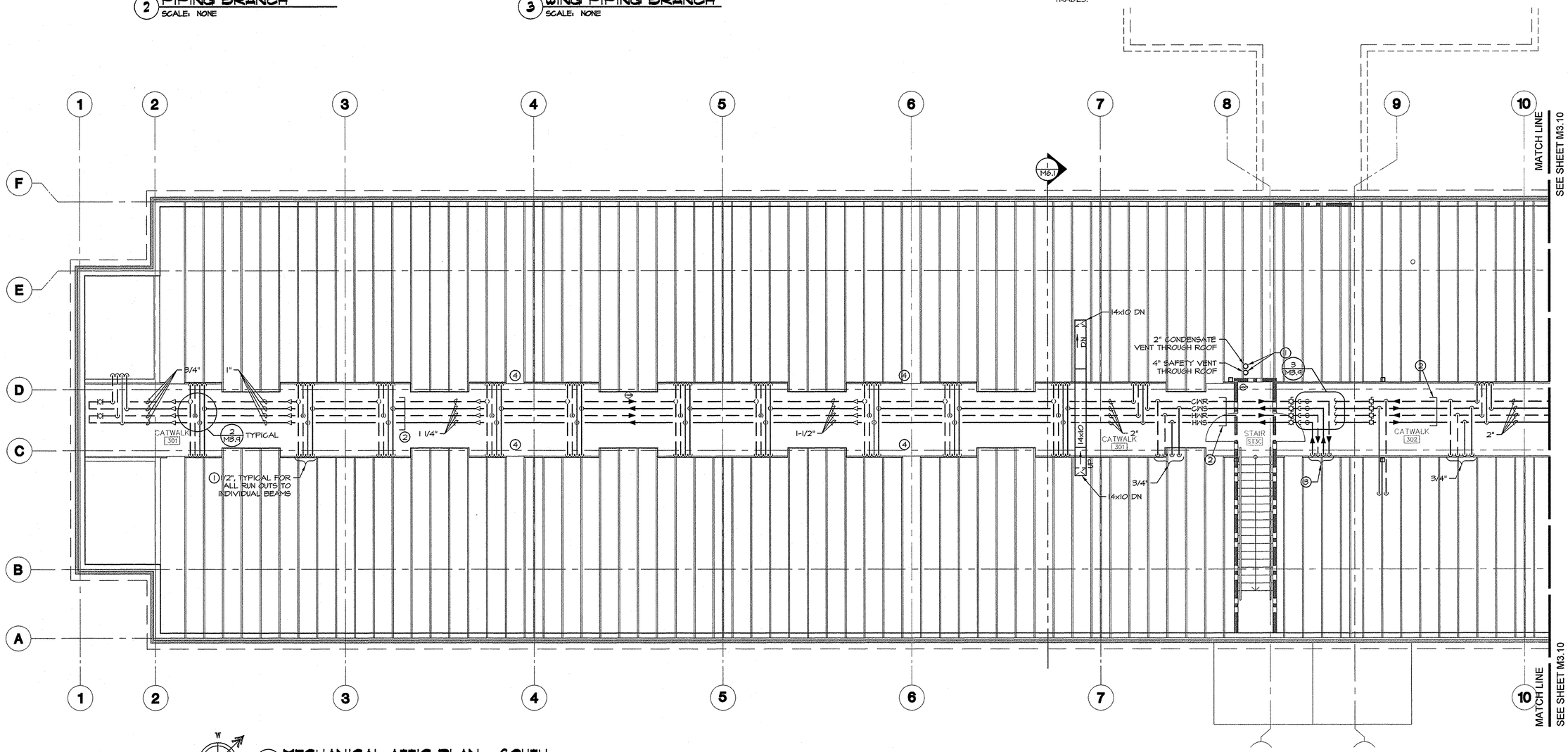
B. CONTRACTOR SHALL COORDINATE ROUTING AND SPACE REQUIREMENTS OF PIPING WITH STRUCTURAL MEMBERS AND ALL OTHER TRADES INCLUDING HVAC, PLUMBING, FIRE PROTECTION, ELECTRICAL, AND COMMUNICATIONS/DATA.

C. INSTALL MANUAL AIR VENTS AT HIGH POINTS ON HEATING AND CHILLED WATER PIPING.

D. CONTRACTOR SHALL INSTALL HYDRONIC CONTROL VALVES SUCH THAT THE ACTUATORS CAN EASILY BE ACCESSED FOR FUTURE REPLACEMENT. COORDINATE WITH ALL OTHER TRADES.

KEYED NOTES

1. SEE M3.7 FOR CONTINUATION, TYPICAL. ONLY ONE SET OF DROPS ARE SHOWN FOR CLARITY; TWO SETS ARE REQUIRED AT ALL LOCATIONS, ONE SET OF DROPS PER FLOOR, EXCEPT ENDS OF WINGS.
2. LOCATE MAINS AND VALVES ON PIPE RACK ON WALL, SEE 1/M6.1. PIPES SHOWN HORIZONTALLY FOR CLARITY ONLY.
3. 3" HWS, 3" HWR, 3" CWS AND 3" CWR DOWN. SEE M3.7 FOR CONTINUATION.
4. ATTIC ACCESS LOCATION, KEEP CLEAR EXCEPT WHERE PIPE RACKS CROSS.



MECHANICAL ATTIC PLAN - SOUTH

1 SCALE: 3/16" = 1'-0"

MAI Project Number: 13-1130

MARQUESS & ASSOCIATES INC
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REVISIONS	DATE

REGISTERED PROFESSIONAL ENGINEER
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RENEWAL DATE: 6-30-15
OREGON
MAY 18, 1982
OSCAR J. ZUNIGA JR.

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WHITE CITY, OREGON

DRAWING TITLE:
MECHANICAL ATTIC PLAN - SOUTH

FULLY SPRINKLERED FACILITY

PROJECT TITLE
REPLACE DOM BLDG. 203

DRAWN BY:	DATE:	DRAWING NO.:
JDG	4 AUGUST 2014	M3.9
CHECK BY:	VA PROJECT NO.:	DWG.12 OF 22
OJZ	692-339	

US DEPARTMENT OF VETERANS AFFAIRS

Jul 31, 2014 - 2:32pm
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GENERAL NOTES

A. FIRE CAULK ALL PIPE PENETRATIONS THROUGH FIRE-RATED WALLS, SEE ARCHITECTURAL, 8/M6.3, AND SPECIFICATIONS SECTION 078400. IN ADDITION, THE FOLLOWING PIPE & DUCT PENETRATIONS SHALL BE FIRESTOPPED:
   -FIRE AND SMOKE BARRIERS (SEE ARCH)
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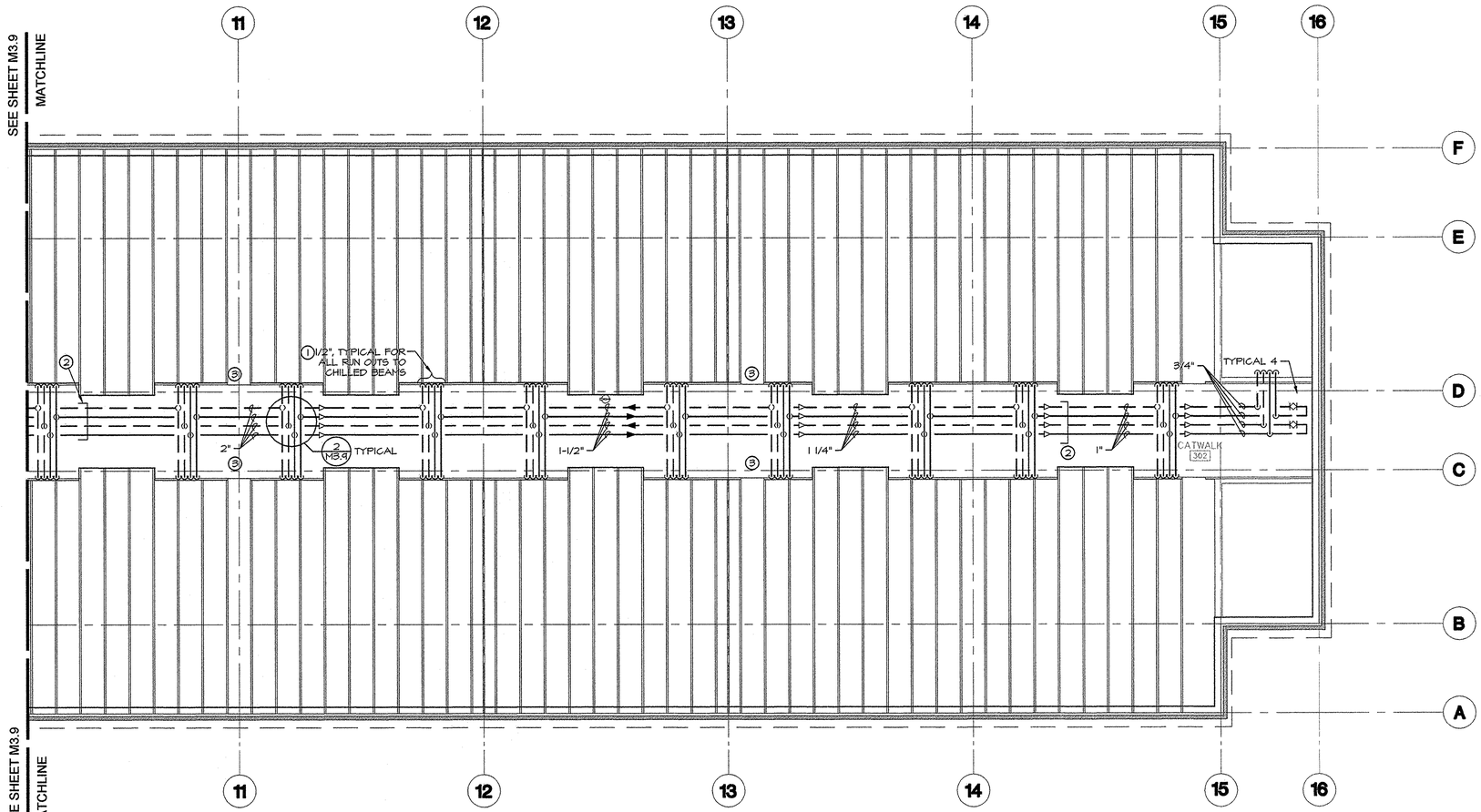
B. CONTRACTOR SHALL COORDINATE ROUTING AND SPACE REQUIREMENTS OF PIPING WITH STRUCTURAL MEMBERS AND ALL OTHER TRADES INCLUDING HVAC, PLUMBING, FIRE PROTECTION, ELECTRICAL, AND COMMUNICATIONS/DATA.

C. INSTALL MANUAL AIR VENTS AT HIGH POINTS ON HEATING AND CHILLED WATER PIPING.

D. CONTRACTOR SHALL INSTALL HYDRONIC CONTROL VALVES SUCH THAT THE ACTUATORS CAN EASILY BE ACCESSED FOR FUTURE REPLACEMENT. COORDINATE WITH ALL OTHER TRADES.

KEYED NOTES

1. SEE M3.8 FOR CONTINUATION, TYPICAL. ONLY ONE SET OF DROPS ARE SHOWN FOR CLARITY; TWO SETS ARE REQUIRED AT ALL LOCATIONS, ONE SET OF DROPS PER FLOOR, EXCEPT ENDS OF WINGS.
2. LOCATE MAINS AND VALVES ON PIPE RACK ON WALL, SEE 1/M6.1. PIPES SHOWN HORIZONTALLY FOR CLARITY ONLY.
3. ATTIC ACCESS LOCATION, KEEP CLEAR EXCEPT WHERE PIPE RACKS CROSS.



W S N E TRUE NORTH

1 MECHANICAL ATTIC PLAN - NORTH
SCALE: 3/16" = 1'-0"

MAI Project Number: 13-1130
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REVISIONS	DATE

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DRAWING TITLE:
MECHANICAL ATTIC PLAN - NORTH

FULLY SPRINKLERED FACILITY

PROJECT TITLE
REPLACE DOM BLDG. 203

DRAWN BY:	DATE:	DRAWING NO.:
JDG	4 AUGUST 2014	M3.10
CHECK BY:	VA PROJECT NO.:	DWG.13 OF 22
OJZ	692-339	

US DEPARTMENT OF VETERANS AFFAIRS

jul 31, 2014 - 2:38pm

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NOTE: All items that require access, such as for operating, cleaning, servicing, maintenance, and calibration, shall be easily and safely accessible by persons standing at floor level, or standing on permanent platforms, without the use of portable ladders. Examples of these items include, but are not limited to: all types of valves, filters and strainers, transmitters, control devices. Prior to commencing installation work, refer conflicts between this requirement and contract drawings to the RE/COTR for resolution.

AIR TO AIR HEAT EXCHANGER SCHEDULE

			SUPPLY FAN (OUTDOOR AIR)							EXHAUST AIR FAN							EXCHANGER PERFORMANCE									HEATING COIL								COOLING COIL										ELECTRICAL					
																	WINTER				SUMMER					GLYCOL									GLYCOL																
TAG	MFR	MODEL	CFM	DRIVE	E.S.P	T.S.P	RPM	BHP	HP	CFM	DRIVE	E.S.P	T.S.P	RPM	BHP	HP	LDB	MBH	APD	EFF.	LDB	LWB	MBH	APD	EFF.	%	GPM	WPD	EWT (F)	LWT (F)	EDB (F)	LDB (F)	APD N. H2O	TOT MBH	%	GPM	WPD	EWT (F)	LWT (F)	EDB (F)	LDB (F)	APD N. H2O	TOT MBH	SENS. MBH	VOLTS	PHASE	MCA	MOCP	WEIGHT (LBS)	NOTES
AHU-1	AZI, OR EQUAL	HDT-12HE	5,700	BELT	1.00	4.22	1458	6.68	7.5	4,675	BELT	0.70	1.79	944	2.38	3	52	205	0.82	64%	81	65	77	0.72	68%	0	17	3.45'	180	157	44	75	0.10	195	30 P.G.	38	7'	45	54	81	64	55	0.59	166	163	208	3	34.0	50	7,200	(1)(2)(3)

(1) OUTDOOR AIR CONDITIONS: SUMMER 94 DB, 69 WB; WINTER 0 DB. EXHAUST AIR CONDITIONS: SUMMER 75 DB, 62.5 WB, WINTER 70 DB, 53 WB.
(2) UNIT TO BE COMPRISED OF 4 SECTIONS TO AID IN INSTALLATION. PROVIDE ADDITIONAL ACCESS DOORS ON OPPOSITE SIDE AT TWO FILTER LOCATIONS AND FACE & BYPASS DAMPER LOCATION.
(3) ALUMINUM FLAT PLATE HEAT EXCHANGER, ETL LISTED, DOUBLE-WALL CONSTRUCTION WITH 1" THICK INSULATION, STAINLESS STEEL DRAIN PAN, HINGED ACCESS DOORS, 2" THICK MERV 8 FILTERS ON OUTSIDE AIR AND EXHAUST AIR, 12" THICK MERV 13 FILTER SUPPLY AIR, FILTER PRESSURE GAUGES W/ SWITCHES, 2-POSITION SHUT-OFF DAMPER ON OUTSIDE AIR DAMPER, MODULATING OSA FACE & BYPASS DAMPERS, EXHAUST AIR BACKDRAFT DAMPER, INTERNALLY ISOLATED FANS, PREMIUM EFFICIENCY MOTORS, DISCONNECT SWITCH, BRANCH CIRCUIT CIRCUIT BREAKERS, SA & EA BLOWER STARTERS W/ OVERLOADS, DAMPER ACTUATORS, AUTO FROST CONTROL, WARM WEATHER ECONOMIZER CONTROLS, AND SUMMER RECOVERY CHANGEOVER.

HVAC DESIGN DATA

OUTDOOR DESIGN TEMPERATURES
- 99 °F DB, 67 °F WB – SUMMER COOLING
- 69 °F WB, 94 °F MCDB – SUMMER EVAPORATION
- 21 °F DB – WINTER

DESIGN ALTITUDE: 1300 FT.

INDOOR AREA DESIGN CONDITIONS	SUMMER		WINTER	
	Db °F	% HUMIDITY	Db °F	% HUMIDITY
PATIENT ROOMS	75	60	70	20

DUCT PRESSURE CLASS TABLE

FAN NO.	DUCT INVOLVED	POSITIVE (P) OR NEGATIVE (N) PRESSURE	MINIMUM PRESSURE CLASS W.G. IN.
AHU-1	FROM ROOM INLETS TO AHU-1	N	1
	FROM OUTSIDE AIR LOUVER TO AHU-1	N	1
	FROM AHU TO CHILLED BEAMS	P	2
	FROM AHU TO EXHAUST LOUVER	P	2

DUCT LEAKAGE CLASSIFICATION AND ALLOWABLE LEAKAGE TABLE

DUCT PRESSURE CLASS, W.G. IN.	SEAL CLASS	APPLICABLE SEALING	SMACNA LEAKAGE CLASS	
			RECTANGULAR DUCT	ROUND DUCT
1/2", 1", 2"	C	TRANSVERSE JOINTS ONLY	24	12
1/2", 1", 2"	B	TRANSVERSE JOINTS AND SEAMS	12	6

NOTE: DUCT SEAL CLASS DEPENDS ON DUCT TYPE (SUPPLY/EXHAUST) AND DUCT LOCATION, SEE SPECIFICATION SECTION 233100.

GRILLES, REGISTERS, DIFFUSERS SCHEDULE

TAG	SERVICE	MFR	MODEL	GRILLE SIZE	NECK SIZE	PANEL SIZE	THROW PATTERN	DAMPER TYPE	MATERIAL	FRAME STYLE	FINISH	NOTES
SG-1	SUPPLY	PRICE, OR EQUAL	AMCD	6x6	6x6	24x24	2-WAY	-	STEEL	T-BAR	WHITE	(1)
SG-2	SUPPLY	PRICE, OR EQUAL	520D/N/S/A	14x8	14x8	-	-	OBD	STEEL	SURFACE	WHITE	(2)
EG-1	EXHAUST	PRICE, OR EQUAL	80/F/A	8x8	8x8	-	-	OBD	ALUM.	SURFACE	WHITE	-
EG-2	EXHAUST	PRICE, OR EQUAL	530/TB/L	24x24	22x22	24x24	-	-	STEEL	T-BAR	WHITE	-
EG-3	EXHAUST	PRICE, OR EQUAL	530/TB/L	12x12	10x10	12x12	-	-	STEEL	T-BAR	WHITE	-
EG-4	EXHAUST	PRICE, OR EQUAL	530D/N/L/A	12x12	12x12	-	-	OBD	STEEL	SURFACE	WHITE	(2)

(1) CONTRACTOR SHALL PROVIDE SQUARE-TO-ROUND ADAPTOR TO MATCH DUCT SIZE WHEN ROUND SUPPLY DUCT UTILIZED, SEE PLANS FOR SIZE.
(2) DUCT SIZE SHALL BE 1" LARGER ALL AROUND SO GRILLE IS MOUNTED FLUSH.

AIR COOLED CHILLER SCHEDULE

TAG	MFR	MODEL NUMBER	REFRIG. TYPE	REFRIG. CHARGE (LBS)	FULL LOAD CAPACITY TONS	NO. CIRCUITS	EFFICIENCY		COMPRESSOR		EVAPORATOR				ELECTRICAL				MAX. OPER. WEIGHT (LBS)	NOTES
							FULL LOAD EER	IPLV EER	QTY	TYPE	EWT (F)	LWT (F)	GPM	WPD (FT)	VOLTS	PHASE	MCA	MOCP		
CH-203	CARRIER, OR EQUAL	30RAP035	R-410A	29.2	34.4 TONS	2	10.39	14.9	4	SCROLL	54	44	80.3	10.3	208	3	173.3	200	2850	(1) (2)

(1) CHILLED WATER SYSTEM TO HAVE 30% PROPYLENE GLYCOL, SEE SPECIFICATION SECTION 232500.
(2) PROVIDE WITH DIGITAL COMPRESSOR, SUCTION LINE INSULATION, SUCTION SERVICE VALVES, MICRO CHANNEL CONDENSER COILS, DUAL 3 HP PUMPS, 5.5 GAL ACCEPTANCE VOLUME EXPANSION TANK, LOW SOUND ACOUSTIC ENCLOSURE, SINGLE POINT POWER CONNECTION, UNIT MOUNTED NON-FUSED DISCONNECT, BACNET TRANSLATOR CONTROL, LOW SOUND OPTION, LOW AMBIENT HEAD PRESSURE CONTROL, FREEZE PROTECTION, ENERGY MANAGEMENT MODULE, AND COIL TRIM PANELS.

CHILLED BEAM SCHEDULE

TAG	MFR	MODEL	TYPE	UNIT LENGTH	AIRFLOW PATTERN	AIRFLOW	STATIC PRESSURE (IN. W.G.)	COOLING (1)			HEATING (2)			WEIGHT (LBS.)	NOTES
								FLOW RATE	ENT. WATER TEMP	COIL CAPACITY	FLOW RATE	ENT. WATER TEMP	CAPACITY		
CB-1	SEMCO, OR EQUAL	IQFH	ACTIVE, EXPOSED	8'	2-WAY	50 CFM	0.25	0.8 GPM	60 F	2198 B/HR	0.8 GPM	125 F	2987 B/HR	81	(3) (4) (5) (6) (7)
CB-2	SEMCO, OR EQUAL	IQIB	ACTIVE, RECESSED	6'	2-WAY	50 CFM	0.25	0.75 GPM	60 F	1758 B/HR	0.7 GPM	125 F	5170 B/HR	59	(3) (4) (6) (7)
CB-3	SEMCO, OR EQUAL	IQFH	ACTIVE, EXPOSED	10'	2-WAY	100 CFM	0.37	1.6 GPM	60 F	3516 B/HR	1.6 GPM	125 F	4726 B/HR	118	(3) (4) (5) (6) (7)
CB-4	SEMCO, OR EQUAL	QPVA	PASSIVE, EXPOSED	4'	-	0	0	0.5 GPM	60 F	2000 B/HR	1202 B/HR	-	-	-	68	(3) (4) (5) (6) (7)

(1) COOLING COIL CAPACITY BASED ON 14 DEG. F DIFFERENCE BETWEEN ROOM TEMPERATURE AND AVERAGE CHILLED WATER TEMPERATURE. TOTAL COOLING CAPACITY IS THE COIL CAPACITY PLUS THE COOLING CAPACITY OF THE AIR, WHICH IS BASED ON A 14 DEG. F DIFFERENCE BETWEEN ROOM TEMPERATURE AND SUPPLY AIR TEMPERATURE.
(2) HEATING CAPACITY IS BASED ON A 45 DEG. DIFFERENCE BETWEEN ROOM TEMPERATURE AND AVERAGE HEATING WATER TEMPERATURE.
(3) PROVIDE WITH AIRFLOW PATTERN CONTROL FEATURE (FPC), COMFORT CONTROL FEATURE FOR AIRFLOW ADJUSTMENT, AND PIPING SHROUD.
(4) UNIT SHALL HAVE HINGED ACCESS PANEL AND TAMPER-PROOF LOCK.
(5) PROVIDE WITH END PLATE.
(6) TEST AND BALANCE CONTRACTOR SHALL SET NOZZLE OPENINGS SO PRESSURE DROP PROVIDES THE SPECIFIED AIRFLOW PERFORMANCE.
(7) PIPING STUBS SHALL ACCOMMODATE BRAZED FITTINGS. PUSH-ON CONNECTORS ARE NOT ALLOWED.

OUTSIDE AIR VENTILATION REQUIREMENTS - 2010

AHU / ZONE	SPACE	AREA (SQ. FT.)	NUMBER OF ROOMS	OCCUPANTS PER ROOM	TOTAL OCCUPANTS	CFM PER OCCUPANT (3)	CFM PER SQ. FT. (4)	REQUIRED OSA CFM	DESIGN EXHAUST PER ROOM CFM	DESIGN EXHAUST TOTAL CFM	DESIGN OSA TOTAL CFM	% INCREASE OVER STANDARD
AHU-1 (1)	Bedroom, shared bath	130	68	1	68	5	0.06	340	50	3,400	3,400	900
	Bedroom, private bath	144	2	1	2	5	0.06	10	75	150	100	900
	TV Room (2)	206	4	5	20	5	0.06	100	100	400	400	300
	Office	150	7	2	14	5	0.06	70	50	350	600	757
	Corridor	3,812	-	-	-	-	0.06	229	0	0	400	75
	Janitor	45	4	-	-	-	0.06	-	75	300	0	N/A
	Laundry	343	1	2	2	5	0.06	10	75	100	100	900
	Break	276	1	5	5	5	0.06	25	75	100	100	300
	TOTAL							784		4,800	5,100	551

(1) AHU-1 OPERATES AT 100% OUTSIDE AIR.
(2) ESTIMATED LOAD BASED ON 25 OCCUPANTS PER 1,000 SQUARE FEET.
(3) PER OMSC TABLE 403.3 (THIS IS MORE STRINGENT THAN ASHRAE 62.1).
(4) PER ASHRAE STANDARD 62.1 (THIS IS MORE STRINGENT THAN THE OMSC).

LOUVER SCHEDULE

TAG	DUTY	MFR	MODEL	CFM	MATERIAL	SIZE, INCHES			FREE AREA	FRAME	MAX. dP	MIN. WATER	NOTES
						WIDTH	HEIGHT	DEPTH	SQ. FT	TYPE	IN. H2O	PENETRATION	
L-1	EXHAUST	GREENHECK	ESK-402	4675	ALUMINUM	72"	30"	4	7.5	FLANGED	0.05	690 FPM	(1)
L-2	INTAKE	GREENHECK	ESK-402	5700	ALUMINUM	48"	48"	4	8	FLANGED	0.05	690 FPM	(1)

(1) LOUVERS TO HAVE 0.3" SCREENS.

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REVISIONS	DATE

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EXPIRES: 6-30-2015

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DRAWING TITLE:
MECHANICAL SCHEDULES
FULLY SPRINKLERED FACILITY

PROJECT TITLE
REPLACE DOM BLDG. 203

DRAWN BY:	DATE:	DRAWING NO.:
JDG	4 AUGUST 2014	M5.1
CHECK BY:	VA PROJECT NO.:	DWG.14 OF 22
OJZ	692-339	

US DEPARTMENT OF VETERANS AFFAIRS

Sep 19, 2014 - 2:42pm
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NOTE: All items that require access, such as for operating, cleaning, servicing, maintenance, and calibration, shall be easily and safely accessible by persons standing at floor level, or standing on permanent platforms, without the use of portable ladders. Examples of these items include, but are not limited to: all types of valves, filters and strainers, transmitters, control devices. Prior to commencing installation work, refer conflicts between this requirement and contract drawings to the RE/COTR for resolution.

STEAM TO WATER HEAT EXCHANGER SCHEDULE

TAG	LOCATION	MFR	MODEL	TYPE	LENGTH	DIAMETER	PASSES	HTG SURFACE SQ. FT.	FOULING FACTOR	SHELL SIDE		TUBE SIDE						WEIGHT (LBS)	NOTES
										LBS/HR	PSI	FLUID	GPM	EWT	LWT	WPD	VELOCITY		
HX-1	MECH 001	TACO, OR EQUAL	G04208-S	U-TUBE	4'	4.5"	2	9.3	0.0005	360	10	WATER	35	160	180	2.8'	5.2 FPS	84	-

CONDENSATE PUMP AND RECEIVER SCHEDULE

TAG	MFR	MODEL	LOCATION	SERVICE	TYPE	CAPACITY SQ. FT. E.D.R.	CAPACITY GAL	GPM	DISCHARGE PRESSURE	ELECTRICAL			WEIGHT (LBS)	NOTES
										VOLTS	PHASE	HP		
CP-1	ARMSTRONG, OR EQUAL	4228-GD	MECH 001	DHW & HEATING WATER	DUPLEX	8,000	13.5	12	20 PSI	120	1	1/3	295	(1)

(1) PROVIDE WITH MECHANICAL ALTERNATOR, GAUGE GLASS, AND ISOLATION VALVES.

HVAC PUMP SCHEDULE

TAG	SERVICE	MFR	MODEL NUMBER	TYPE	IMP. SIZE	GPM	HEAD FT H20	MOTOR RPM	MOTOR SPEED	ELECTRICAL			NOTES
										VOLTS	PHASE	HP	
P-1	PRIMARY HEATING WATER	TACO, OR EQUAL	1915	INLINE	5.0"	35	20	1750	CONSTANT	208	1	1/2	(1) (2) (5)
P-2	SECONDARY HEATING WATER, CHILLED BEAMS	TACO, OR EQUAL	1919	INLINE	7.35"	76	38	1750	VARIABLE	208	3	1.5	(1) (3) (5)
P-3	SECONDARY HEATING WATER, AHU COIL	TACO, OR EQUAL	2400-20	INLINE	-	17	21	3450	CONSTANT	115	1	1/8 HP, 1.9 A	(1) (2) (5)
P-4	PRIMARY CHILLED WATER	-	-	INLINE	-	84	41	-	CONSTANT	208	3	3	(1) (4)
P-5	SECONDARY CHILLED WATER, CHILLED BEAMS	TACO, OR EQUAL	1919	INLINE	7.35"	76	38	1750	VARIABLE	208	3	1.5	(1) (3)
P-6	SECONDARY CHILLED WATER, AHU COIL	TACO, OR EQUAL	1915	INLINE	5.8"	38	30	1750	CONSTANT	208	1	3/4	(1) (2) (5)
P-7	CHILLED WATER MAKEUP	B&G, OR EQUAL	GMU30	INLINE	-	10	70	-	CONSTANT	115	1	1/2	(2)

(1) QTY = 2 PUMPS AND 2 DRIVES.
(2) STARTER/DISCONNECT SWITCH BY ELECTRICAL.
(3) INVERTER DUTY RATED MOTOR; VARIABLE FREQUENCY DRIVE PROVIDED BY MECHANICAL, INSTALLED BY ELECTRICAL.
(4) PUMP INCLUDED WITH CHILLER, SEE CHILLER SCHEDULE.
(5) PROVIDE ONE SPARE PUMP TO OWNER.

EXPANSION TANK SCHEDULE

TAG	SERVICE	MFR	MODEL	TYPE	TANK VOLUME	ACCEPT. VOLUME	CHARGE PRESS.	WEIGHT (FULL)	NOTES
ET-1	DOM. HOT WATER	AMTROL, OR EQUAL	ST-12	DIAPHRAGM	4.4 GAL	2.2 GAL	60 PSIG	9 LBS	-
ET-2	HEATING WATER	TACO, OR EQUAL	CBX-130	BLADDER	34 GAL	19 GAL	20 PSIG	358 LBS	(1)
ET-3	CHILLED WATER	-	-	-	-	5 GAL	20 PSIG	-	(2)

(1) TANK SHALL HAVE REMOVABLE BLADDER FOR INSPECTION.
(2) EXPANSION TANK INCLUDED WITH CHILLER, SEE CHILLER SCHEDULE.

AIR SEPARATOR SCHEDULE

TAG	SERVICE	MFR	MODEL NUMBER	CONNECTION SIZE	TYPE	GPM	MAX P.D. FT H20	WEIGHT	NOTES
AS-1	HEATING WATER	TACO, OR EQUAL	AC2F	2" FLANGE	TANGENTIAL	35	1	37 LBS	(1)
AS-2	CHILLED WATER	TACO, OR EQUAL	AC3F	3" FLANGE	TANGENTIAL	84	1	120 LBS	(1)

(1) PROVIDE WITH REMOVABLE STAINLESS STEEL STRAINER.

HUMIDIFIER SCHEDULE

TAG	SYSTEM SERVED	MFR	MODEL	CAPACITY (LB/HR)	ELECTRICAL				NOTES
					VOLTS	PHASE	AMPS	KW	
H-1	AHU-1	CAREL, OR EQUAL	UEX035	77	208	3	72.9	26.25	(1) (2) (3)

(1) ELECTRODE STEAM GENERATOR WITH DISPOSABLE CYLINDER, FOR LOW CONDUCTIVITY WATER.
(2) PROVIDE WITH STAINLESS STEEL DISTRIBUTION PIPE, 10' SUPPLY HOSE AND CONDENSATE RETURN HOSE, HIGH LIMIT HUMIDISTAT, AIRFLOW SWITCH, DRAIN TEMPERING VALVE, AND LOW CONDUCTIVITY CYLINDER.
(3) JOHNSON CONTROLS TO PROVIDE HUMIDITY SENSOR AND INTEGRATE HUMIDIFIER INTO EXISTING CONTROLS SYSTEM.

MAI Project Number: 13-1130
MARQUESS & ASSOCIATES INC
P: 541-772-7115
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1120 East Jackson
PO Box 490
Medford, OR, 97501

REVISIONS	DATE

REGISTERED PROFESSIONAL ENGINEER 16,570 OREGON JANUARY 18, 1983 OSCAR J. ZUNIGA JR. RENEWAL DATE: 6-30-16

kistler + small + white architects

RAYMOND KISTLER, ARCHITECT
552 A STREET
ASHLAND, OREGON 97520
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DEPARTMENT OF VETERANS AFFAIRS

SOUTHERN OREGON REHABILITATION CENTER & CLINICS

8495 CRATER LAKE HIGHWAY
WHITE CITY, OREGON

DRAWING TITLE:

MECHANICAL SCHEDULES

FULLY SPRINKLERED FACILITY

PROJECT TITLE
REPLACE DOM BLDG. 203

DRAWN BY:	DATE:	DRAWING NO.:
JDG	4 AUGUST 2014	M5.2
CHECK BY:	VA PROJECT NO.:	DWG.15 OF 22
OJZ	692-339	

US DEPARTMENT OF VETERANS AFFAIRS

Jul 31, 2014 - 3:09pm

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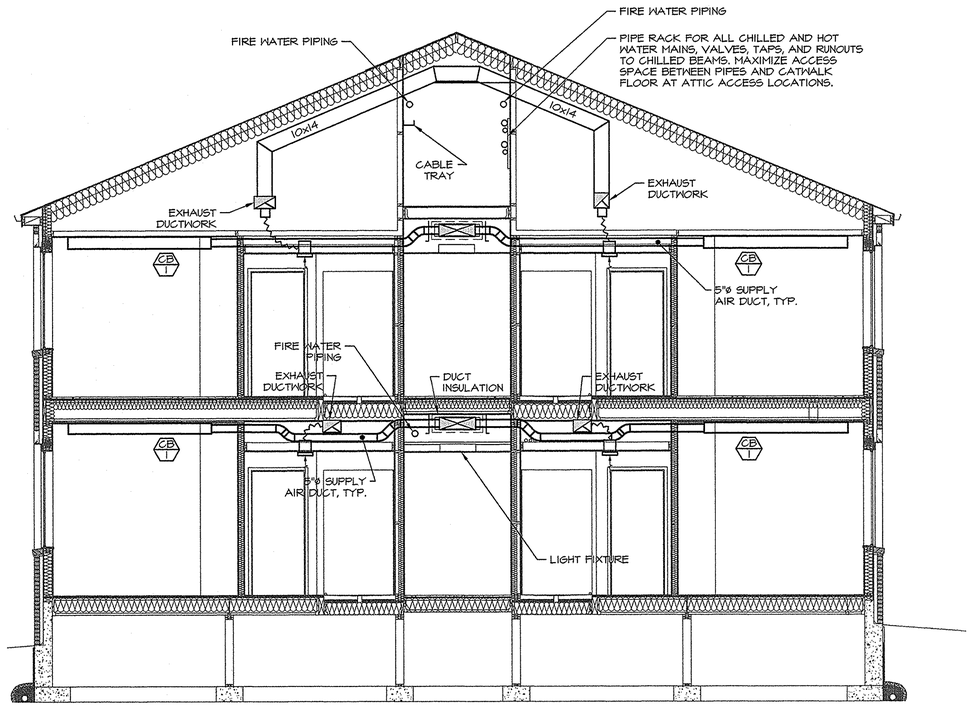
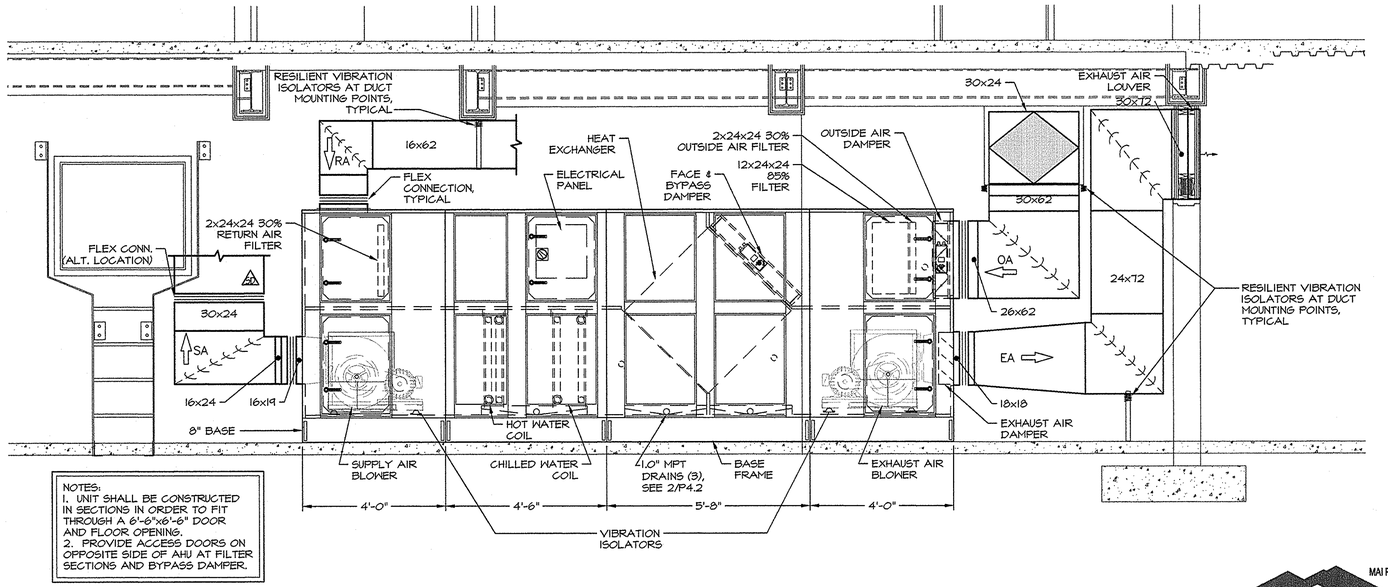


1 HVAC SECTION
SCALE: 1/4" = 1'-0"



NOTES:
1. UNIT SHALL BE CONSTRUCTED IN SECTIONS IN ORDER TO FIT THROUGH A 6'-6"x6'-6" DOOR AND FLOOR OPENING.
2. PROVIDE ACCESS DOORS ON OPPOSITE SIDE OF AHU AT FILTER SECTIONS AND BYPASS DAMPER.

2 AIR HANDLER UNIT SECTION
SCALE: 1/2" = 1'-0"

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DEPARTMENT OF VETERANS AFFAIRS

SOUTHERN OREGON REHABILITATION CENTER & CLINICS

8495 CRATER LAKE HIGHWAY
WHITE CITY, OREGON

DRAWING TITLE:
HVAC SECTIONS

FULLY SPRINKLERED FACILITY

PROJECT TITLE
REPLACE DOM BLDG. 203

DRAWN BY:	DATE:	DRAWING NO.:
JDG	4 AUGUST 2014	M6.1
CHECK BY:	VA PROJECT NO.:	DWG.16 OF 22
OJZ	692-339	

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MECHANICAL SYSTEMS - SEQUENCES OF OPERATION

(A) AIR-TO-AIR HEAT EXCHANGER

1. AHU-1 SERVES BUILDING 203. THE UNIT HAS TWO FANS WHICH OPERATE CONTINUOUSLY AT A CONSTANT SPEED. THE EXHAUST AIR FAN DRAWS AIR FROM THE RESTROOMS AND JANITOR CLOSETS AND EXHAUSTS AIR TO THE OUTSIDE AFTER IT PASSES THROUGH AN ALUMINUM PLATE HEAT EXCHANGER. THE SUPPLY AIR FAN DRAWS OUTSIDE AIR THROUGH THE HEAT EXCHANGER AND THROUGH A CHILLED WATER AND HEATING WATER COIL AND IS DUCTED TO EACH OF THE CHILLED BEAMS IN THE BUILDING.

2. FRONT CONTROL (FACE & BYPASS AIR DAMPER, MODULATING): AS THE TEMPERATURE OF THE EXHAUST AIRSTREAM LEAVING THE EXCHANGER FALLS BELOW THE ADJUSTABLE SETPOINT TEMPERATURE OF 35F, THE FROST CONTROL THERMOSTAT (T-F) SHALL MODULATE THE FACE & BYPASS DAMPER (DFB) TO THE BYPASS POSITION AS REQUIRED TO MAINTAIN THE FROST CONTROL SETPOINT. BY KEEPING THE EXHAUST AIRSTREAM ABOVE 35F (ADJUSTABLE), FROST IS PREVENTED FROM FORMING IN THE EXCHANGER. AS THE TEMPERATURE OF THE EXHAUST AIRSTREAM RISES ABOVE THE T-F SETPOINT, DFB WILL MODULATE TO THE FACE POSITION. TEMPERATURE CONTRACTOR MAY USE THEIR OWN CONTROLLER IN LIEU OF THE FACTORY-PROVIDED CONTROLLER FOR FROST CONTROL.

3. ECONOMIZER CONTROL (FACE & BYPASS AIR DAMPER, MODULATING): AS THE TEMPERATURE OF THE SUPPLY AIRSTREAM LEAVING THE EXCHANGER RISES ABOVE THE SETPOINT (55F, ADJUSTABLE) OF THE ECONOMIZER THERMOSTAT (T-EC), T-EC SHALL MODULATE THE FACE & BYPASS DAMPER (DFB) TO THE BYPASS POSITION AS REQUIRED TO MAINTAIN THE SETPOINT. AS THE TEMPERATURE OF THE DISCHARGE TEMPERATURE DROPS BELOW THE MAXIMUM DISCHARGE SETPOINT, T-EC SHALL MODULATE DFB TO THE FULL-FACE POSITION.

4. SUMMER RECOVERY CHANGEOVER (FACE & BYPASS DAMPER): WHEN THE TEMPERATURE OF THE OUTSIDE AIR RISES ABOVE THE SETPOINT (75F) OF THE SUMMER CHANGEOVER THERMOSTAT (T-SC), T-SC SHALL SWITCH THE UNIT FROM THE ECONOMIZER BYPASS MODE TO MAXIMUM HEAT RECOVERY. THE OUTSIDE AIR FACE & BYPASS DAMPER (DOFB) SHALL MODULATE TO THE FULL-FACE POSITION FOR FULL HEAT RECOVERY.

5. THE SUPPLY AIR TEMPERATURE SHALL RANGE FROM 55F DURING THE HOTTEST OUTDOOR AIR CONDITIONS TO 75F DURING THE COLDEST OUTDOOR AIR CONDITIONS. THE SUPPLY AIR SHALL BE CONDITIONED SO THAT ITS DEW POINT TEMPERATURE IS 3-5F (ADJUSTABLE) LOWER THAN THE CHILLED WATER SUPPLY TEMPERATURE IN THE SECONDARY LOOP TO PREVENT CONDENSATION AT THE CHILLED BEAMS DURING TIMES OF COOLING. THE RETURN/EXHAUST AIR (UPSTREAM OF HEAT EXCHANGER) AND OUTDOOR AIR CONDITIONS (TEMPERATURE AND HUMIDITY) SHALL BE CONSTANTLY MONITORED. IF THE DEW POINT OF THE RETURN/EXHAUST AIR APPROACHES THE CHILLED WATER SUPPLY TEMPERATURE, THEN THE DEWPOINT TEMPERATURE OF THE SUPPLY AIR SHALL BE LOWERED.

6. A 3-WAY CONTROL VALVE SHALL MODULATE CHILLED WATER THROUGH THE COOLING COIL WHEN COOLING OR DEHUMIDIFICATION IS NEEDED. A 3-WAY CONTROL VALVE SHALL MODULATE HEATING WATER THROUGH THE HEATING COIL WHEN HEATING OR RE-HEATING IS REQUIRED. THE CHILLED WATER COIL AT AHU-1 MAY NEED TO BE ENERGIZED DURING SOME OUTDOOR CONDITIONS (HUMID DAYS WHEN THE TEMPERATURE IS MILD) ALONG WITH THE HOT WATER COIL FOR REHEAT IN ORDER TO ACCOMPLISH THE 3-5F DEWPOINT TEMPERATURE SEPARATION.

a. DEHUMIDIFICATION SEQUENCE: START CHILLER; SET PRIMARY CHILLED WATER LOOP TEMPERATURE TO DEWPOINT TEMPERATURE MINUS DIFFERENTIAL; OPEN CHILLED WATER VALVE 100%; MODULATE HEATING VALVE TO MAINTAIN DISCHARGE AIR SETPOINT.

7. SAFETIES:

a. AN ALARM SHALL REGISTER AND THE UNIT SHALL TURN OFF IF THE SUPPLY FAN OR EXHAUST FAN WITHIN AHU-1 FAILS.

b. A SERPENTINE FREEZESTAT SHALL BE LOCATED ON THE HOT WATER COIL. AHU-1 SHALL TURN OFF AND AN ALARM SHALL BE RECORDED IN METASYS UPON DETECTION OF TEMPERATURES BELOW 35F (ADJUSTABLE).

c. HOT WATER CONTROL VALVE SHALL OPEN 100% UPON POWER FAILURE WHEN THE OUTDOOR TEMPERATURE IS BELOW 35F (ADJUSTABLE).

d. UNIT SHALL TURN OFF AND OUTSIDE AIR DAMPER SHALL CLOSE UPON ACTIVATION OF THE DUCT SMOKE DETECTOR OR SIGNAL FROM BUILDING FIRE ALARM SYSTEM.

(B) CHILLED WATER SYSTEM

AIR-COOLED CHILLER CH-203: THE BAS SHALL CALL FOR THE CHILLER TO TURN ON OR OFF. CHILLER SHALL BE ENABLED WHEN THERE IS A CALL FOR COOLING BY 3 OR MORE THERMOSTATS (ADJUSTABLE), AND THE OUTDOOR AIR TEMPERATURE IS ABOVE 55F (ADJUSTABLE). CHILLER SHALL TURN OFF WHEN 2 OR LESS THERMOSTATS ARE CALLING FOR COOLING, OR WHEN THE OUTDOOR AIR TEMPERATURE DROPS BELOW 55F (ADJUSTABLE). CHILLED WATER SUPPLY TEMPERATURE SHALL BE 45F (ADJUSTABLE) AND BE RESET HIGHER BASED ON OUTDOOR AIR TEMPERATURE AND OUTDOOR HUMIDITY LEVELS.

PRIMARY PUMP P-4: P-4 IS THE PRIMARY CHILLED WATER SYSTEM PUMP. THERE ARE TWO PUMPS THAT SHALL OPERATE IN A LEAD/LAG CONFIGURATION. THE SECOND PUMP SHALL TURN ON AND AN ALARM RECORDED IF THE LEAD PUMP FAILS. THE PRIMARY PUMP OPERATES AT A CONSTANT SPEED AND CIRCULATES WATER THROUGH THE CHILLER. THE CHILLER HAS INTEGRAL CONTROLS THAT TURN THE PRIMARY PUMPS ON AND OFF.

SECONDARY PUMP P-5: P-5 IS THE SECONDARY CHILLED WATER SYSTEM PUMP. THERE ARE TWO PUMPS THAT SHALL OPERATE IN A LEAD/LAG CONFIGURATION. THE SECOND PUMP SHALL TURN N AND AN ALARM RECORDED IF THE LEAD PUMP FAILS. THE SECONDARY PUMP OPERATES AT A VARIABLE SPEED AND CIRCULATES WATER THROUGH THE ACTIVE CHILLED BEAM UNITS. THE VFD WILL MAINTAIN A CONSTANT PRESSURE IN THE SECONDARY LOOP AS MEASURED BY A DIFFERENTIAL PRESSURE SENSOR. THE CHILLED WATER SUPPLY TEMPERATURE SHALL BE 60F (ADJUSTABLE). THE PUMP HAS A MINIMUM FLOW RATE OF 22 GPM. A FLOW METER WILL BE USED TO CONTROL THE BYPASS FLOW. THE PUMP SHALL TURN OFF WHEN THERE IS NO CALL FOR COOLING (WHEN ALL OF THE CHILLED BEAM CONTROL VALVES ARE CLOSED) OR WHEN THE OUTSIDE AIR TEMPERATURE IS BELOW 55F (ADJUSTABLE).

(C) HOT WATER SYSTEMS

STEAM-TO-WATER HEAT EXCHANGER HX-1: STEAM SHALL BE CONTROLLED VIA TWO MODULATING VALVES. ONE VALVE SHALL BE SIZED TO CONTROL $\frac{1}{3}$ OF THE HEAT EXCHANGER CAPACITY AND THE OTHER SHALL BE SIZED TO CONTROL $\frac{2}{3}$ OF ITS CAPACITY. HOT WATER TEMPERATURE SHALL BE RESET BASED ON OUTDOOR AIR TEMPERATURE AND RANGE FROM 180F (ADJUSTABLE) WHEN THE OUTSIDE AIR TEMPERATURE IS 30F (ADJUSTABLE) OR LOWER TO 140F (ADJUSTABLE) WHEN THE OUTSIDE AIR TEMPERATURE IS 55F (ADJUSTABLE).

PRIMARY PUMP P-1: P-1 IS THE PRIMARY HEATING WATER SYSTEM PUMP. THERE ARE TWO PUMPS THAT SHALL OPERATE IN A LEAD/LAG CONFIGURATION. THE SECOND PUMP SHALL TURN ON AND AN ALARM RECORDED IF THE LEAD PUMP FAILS. THE PRIMARY PUMP OPERATES AT A CONSTANT SPEED AND CIRCULATES WATER THROUGH THE SHELL AND TUBE HEAT EXCHANGER. P-1 SHALL TURN ON UPON A CALL FOR HEATING.

SECONDARY PUMP P-2: P-2 IS THE SECONDARY HEATING WATER SYSTEM PUMP. THERE ARE TWO PUMPS THAT SHALL OPERATE IN A LEAD/LAG CONFIGURATION. THE SECOND PUMP SHALL TURN ON AND AN ALARM RECORDED IF THE LEAD PUMP FAILS. THE SECONDARY PUMP OPERATES AT A VARIABLE SPEED AND CIRCULATES WATER THROUGH THE ACTIVE CHILLED BEAM UNITS. THE VFD WILL MAINTAIN A CONSTANT PRESSURE IN THE SECONDARY LOOP AS MEASURED BY A DIFFERENTIAL PRESSURE SENSOR. THE HEATING WATER SUPPLY TEMPERATURE SHALL BE 125F (ADJUSTABLE). THE PUMP HAS A MINIMUM FLOW RATE OF 22 GPM. A FLOW METER WILL BE USED TO CONTROL THE BYPASS FLOW. THE PUMP SHALL TURN OFF WHEN THERE IS NO CALL FOR HEATING (WHEN ALL OF THE CHILLED BEAM CONTROL VALVES ARE CLOSED) OR WHEN THE OUTSIDE AIR TEMPERATURE IS ABOVE 65F (ADJUSTABLE).

(D) HUMIDIFIER

THE HUMIDIFIER SHALL ONLY BE ENERGIZED DURING WINTER MONTHS WHEN THE OUTSIDE AIR TEMPERATURE IS BELOW 32F. HUMIDIFIER SHALL BE ACTIVATED WHEN THE RELATIVE HUMIDITY IN THE MAIN RETURN/EXHAUST AIR DUCT DROPS BELOW 25%. HUMIDIFIER SHALL MAINTAIN 30% RELATIVE HUMIDITY (ADJUSTABLE) IN ROOMS AS MEASURED WITHIN THE MAIN RETURN/EXHAUST AIR DUCT. HUMIDITY LEVEL IN THE SUPPLY AIR DUCT SHALL BE CONTROLLED AND RESET BY THE RETURN/EXHAUST AIR HUMIDITY LEVEL. A HIGH LIMIT HUMIDITY SENSOR SHALL BE INSTALLED IN THE SUPPLY AIR DUCT 10' DOWNSTREAM FROM HUMIDIFIER PROBE. AN AIRFLOW PROVING SWITCH SHALL BE INTERLOCKED WITH THE HUMIDIFIER TO PREVENT ACTIVATION UNLESS AIRFLOW IS PRESENT.

(E) CHILLED BEAMS

1. THE ACTIVE CHILLED BEAMS HAVE A DUCT CONNECTION, A COOLING COIL, AND A HEATING COIL. PASSIVE CHILLED BEAMS IN ELECTRICAL ROOMS ARE SIMILAR EXCEPT THAT THEY HAVE NO DUCT CONNECTION OR HEATING COIL. AHU-1 SUPPLIES A CONSTANT VOLUME OF 50 CFM TO EACH ACTIVE CHILLED BEAM. THE HEATING AND COOLING COILS EACH HAVE A 2-WAY, 2-POSITION CONTROL VALVE. THE HEATING VALVE SHALL OPEN 100% UPON CALL FOR HEAT AND THE COOLING VALVE SHALL OPEN 100% UPON CALL FOR COOLING. AN ADJUSTABLE DEAD-BAND SHALL PREVENT SIMULTANEOUS HEATING AND COOLING.

2. A CONDENSATION SENSOR SHALL BE INSTALLED ON THE CHILLED WATER SUPPLY PIPE TO EACH CHILLED BEAM (ONE SENSOR FOR EACH CONTROL VALVE). THE CHILLED WATER CONTROL VALVE SHALL TURN OFF UPON DETECTION OF CONDENSATION. THE VALVE SHALL AUTOMATICALLY OPEN, IF REQUIRED, WHEN CONDENSATION IS NO LONGER PRESENT.

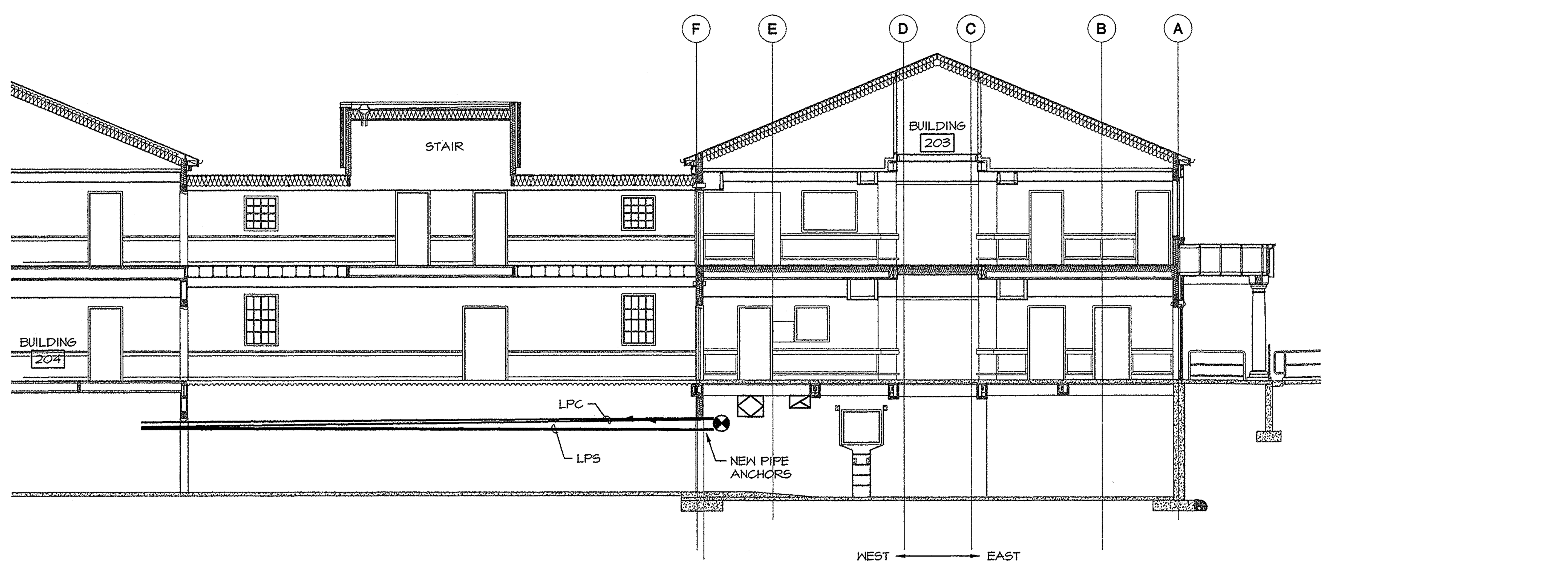
3. EACH ROOM OR ZONE WILL HAVE A THERMOSTAT AND SHALL BE CAPABLE OF ADJUSTMENT FROM 55 TO 85F AND HAVE A DIGITAL DISPLAY OF ROOM TEMPERATURE. THERMOSTAT SHALL HAVE AN ADJUSTABLE DEAD-BAND AND INDEPENDENT RANGE ADJUSTMENT FOR HEATING AND COOLING SETPOINTS. OWNER IS TO DIRECT RANGE OF ADJUSTMENT ALLOWED BY THE USER; ORIGINAL SETTINGS TO BE 65-78F (HEATING 65-70F, COOLING 74-78F, 4F DEAD-BAND).

(F) SUMP PUMPS

UNITS OPERATE UNDER INTERNAL CONTROLS. AN ALARM WILL BE ACTIVATED UPON HIGH LEVEL CONDITION.

(G) DOMESTIC WATER HEATING

DOMESTIC HOT WATER GENERATOR: MODULATE STEAM VALVE TO MAINTAIN HOT WATER SUPPLY TEMPERATURE OF 145F (ADJUSTABLE). PROVIDE MONITORING AND REGISTER ALARM IF SUPPLY WATER TEMPERATURE RISES ABOVE 150F (ADJUSTABLE). DOMESTIC HOT WATER CIRCULATING PUMP: PUMP RUNS CONTINUOUSLY. AN ALARM WILL BE ACTIVATED ON PUMP FAILURE.



(1) MECHANICAL BASEMENT STEAM PIPING PLAN

SCALE: 1/8" = 1'-0"

GENERAL NOTES

A. PIPING ELEVATIONS SHOWN ARE FROM FIELD OBSERVATIONS. CONTRACTOR SHALL FIELD VERIFY ALL EXISTING PIPE ELEVATIONS. NOTE THAT THE BASEMENT AND CORRIDOR FLOORS ARE NOT LEVEL BETWEEN BUILDINGS. SLOPE NEW PIPING TO MATCH EXISTING PIPE CONNECTION POINTS.

B. PIPING SHALL SLOPE UNIFORMLY. SLOPE STEAM PIPING EASTWARD; SLOPE CONDENSATE PIPING WESTWARD, AS SHOWN.

C. ALL PIPING SHALL BE SLEEVED AND SEALED THROUGH ANY STRUCTURE OR CONCRETE.

D. FIRE CAULK ALL PIPE PENETRATIONS THROUGH FIRE-RATED WALLS, SEE ARCHITECTURAL, 8/M6.3, AND SPECIFICATIONS SECTION 078400. IN ADDITION, THE FOLLOWING PIPE & DUCT PENETRATIONS SHALL BE FIRESTOPPED:
- FIRE AND SMOKE BARRIERS (SEE ARCH)
- FIRE PARTITIONS (SEE ARCH)
- FLOORS & CEILINGS
- SHAFT WALLS & FLOORS

E. STEAM AND CONDENSATE PIPING MAY BE HUNG FROM CEILING OR ATTACHED TO WALLS, SEE SPECIFICATIONS SECTION 230511. SOME PIPING IN MECH RM 001 WILL NEED TO BE HUNG FROM STRUCTURE ABOVE.

F. PROVIDE PIPE GUIDES ON PIPING BETWEEN ANCHORS.

G. STEAM PIPING CONTRACTOR SHALL DESIGN ALL PIPE ANCHORAGE DETAILS. PROVIDE SHOP DRAWINGS AND STAMPED CALCULATIONS BY LICENSED STRUCTURAL ENGINEER THAT INCLUDES ATTACHMENTS OF PIPING TO STRUCTURE FOR REVIEW.

KEYED NOTES

(1) NOT USED.

MAI Project Number: 13-1130
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REGISTERED PROFESSIONAL ENGINEER 16,570 RENEW DATE: 6-30-16 OREGON MAY 18, 1993 OSCAR J. ZUNIGA JR.

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8495 CRATER LAKE HIGHWAY
WHITE CITY, OREGON

DRAWING TITLE: MECHANICAL STEAM PIPING SECTIONS

FULLY SPRINKLERED FACILITY

PROJECT TITLE: REPLACE DOM BLDG. 203

DRAWN BY:	DATE:	DRAWING NO.:
JDG	4 AUGUST 2014	M6.2
CHECK BY: OJZ	VA PROJECT NO.: 692-339	DWG.17 OF 22

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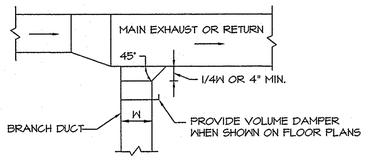
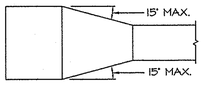


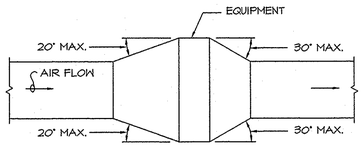
PLAN VIEW

EXHAUST OR RETURN BRANCH DUCTWORK



PLAN OR SIDE VIEW

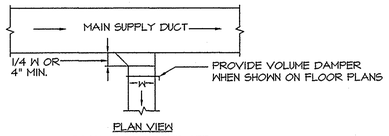
TYPICAL DUCTWORK TRANSITION



PLAN OR SIDE VIEW

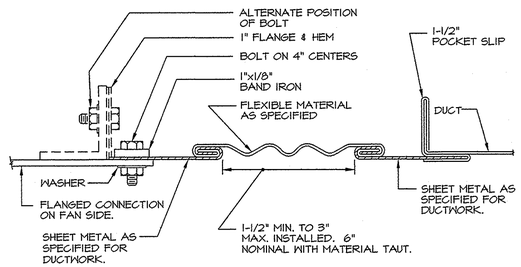
TYPICAL DUCTWORK TRANSITION WITH EQUIPMENT MOUNTED IN DUCT

NOTE:
UNLESS OTHERWISE INDICATED ON PLANS, MAXIMUM ANGLES SHOWN SHALL APPLY.

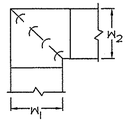


PLAN VIEW
BRANCH DUCT TAKE-OFF

SUPPLY DUCTWORK TAKE-OFFS



RECTANGULAR FLEXIBLE CONNECTION

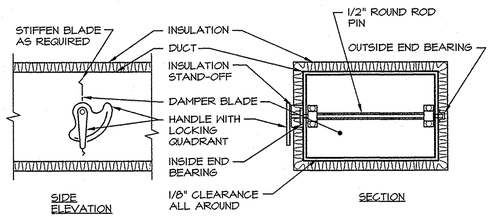


DUCTWORK SQUARE VANED ELBOWS

NOTES:

1. ALL VANED ELBOWS SHALL BE CONSTRUCTED AND INSTALLED AS DETAILED BY SMACNA.
2. WHEN W_1 DOES NOT EQUAL W_2 VANE SHALL BE SINGLE VANE TYPE REGARDLESS OF W DIMENSION.
3. ALL SINGLE VANES SHALL HAVE A 2" RADIUS, 1 1/2" MAXIMUM SPACE BETWEEN VANES AND A 3/4" TRAILING EDGE.
4. WHEN W_1 EQUALS W_2 AND W IS GREATER THAN 20" VANES SHALL BE DOUBLE VANE TYPE.

1 LOW PRESSURE DUCT CONSTRUCTION DETAILS
SCALE: NONE

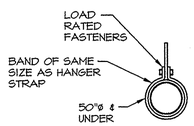


NOTE:

1. DELETE INSULATION STAND-OFF ON DUCTWORK WITHOUT EXTERIOR INSULATION.
2. DETAIL SHOWS SINGLE BLADE DAMPER. DAMPER INSTALLATION SHALL BE SIMILAR FOR MULTI-BLADE DAMPERS & ROUND DAMPERS.
3. PROVIDE FLAG TAPE AT EACH VOLUME DAMPER HANDLE FOR EASY IDENTIFICATION.

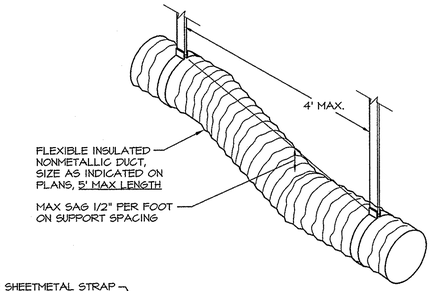
5 VOLUME DAMPER DETAIL
SCALE: NONE

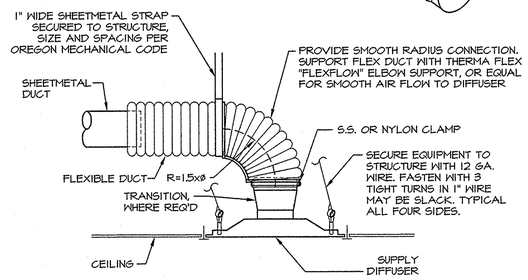
HANGER STRAPS OR RODS			
MAX. DUCT ø IN.	QUANTITY/SIZE IN.	MAX. LOAD LBS.	MAX. SPACING IN.
26	ONE 1 x 22 GA STRAP	260	144
36	ONE 1 x 18 GA STRAP	420	144



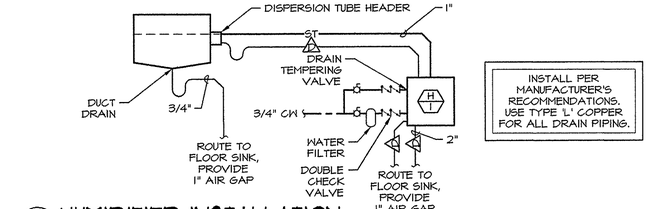
NOTE:
TABULATED DATA FROM SMACNA ALLOWS FOR DUCT REINFORCING AND INSULATION, BUT NO EXTERNAL LOAD.

6 ROUND DUCT HANGERS
SCALE: NONE



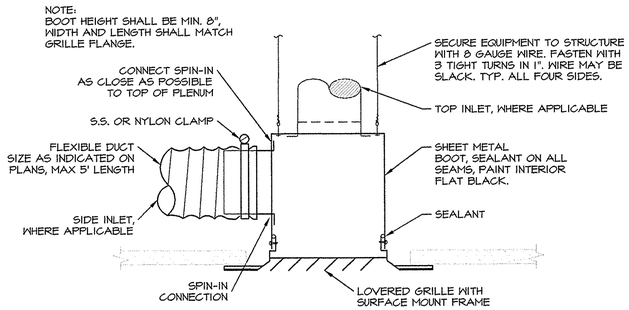


2 SUPPLY DIFFUSER INSTALLATION
SCALE: NONE



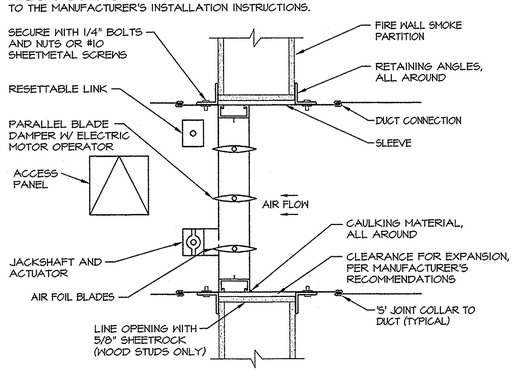
INSTALL PER MANUFACTURER'S RECOMMENDATIONS. USE TYPE 'L' COPPER FOR ALL DRAIN PIPING.

3 HUMIDIFIER INSTALLATION
SCALE: NONE

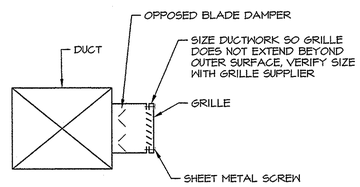


4 TYP. RETURN/EXHAUST GRILLE MOUNTING
SCALE: NONE

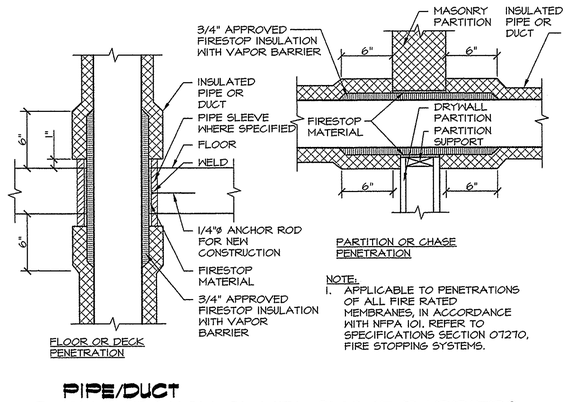
NOTE:
FIRE SMOKE DAMPER INSTALLATION SHALL CONFORM TO THE MANUFACTURER'S INSTALLATION INSTRUCTIONS.



7 COMBINATION FIRE/SMOKE DAMPER
SCALE: NONE

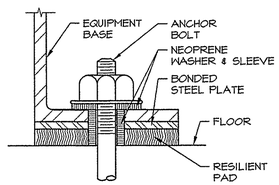


9 EXPOSED GRILLE
SCALE: NONE

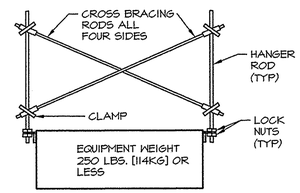


NOTE:
1. APPLICABLE TO PENETRATIONS OF ALL FIRE RATED MEMBRANES, IN ACCORDANCE WITH NFPA 101, REFER TO SPECIFICATIONS SECTION 07270, FIRE STOPPING SYSTEMS.

8 PIPE/DUCT PENETRATION OF FIRE/SMOKE BARRIERS
SCALE: NONE



FLOOR MOUNT EQUIPMENT RESTRAINED BY RESILIENT PADS (TYPE DS)



SEISMIC BRACING FOR LIGHT SUSPENDED EQUIPMENT

10 SEISMIC BRACING FOR EQUIPMENT
SCALE: NONE

MAI Project Number: 13-1130

MARQUESS & ASSOCIATES INC
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REVISIONS	DATE

REGISTERED PROFESSIONAL ENGINEER 16,570 RENEWAL DATE: 6-30-16 OREGON JAN 18, 1982 OSCAR J. ZUNIGA JR.

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DEPARTMENT OF VETERANS AFFAIRS

SOUTHERN OREGON REHABILITATION CENTER & CLINICS

8495 CRATER LAKE HIGHWAY
WHITE CITY, OREGON

DRAWING TITLE:
MECHANICAL DETAILS

FULLY SPRINKLERED FACILITY

PROJECT TITLE
REPLACE DOM BLDG. 203

DRAWN BY:	DATE:	DRAWING NO.:
JDG	4 AUGUST 2014	M6.3
CHECK BY:	VA PROJECT NO.:	DWG.18 OF 22
OJZ	692-339	

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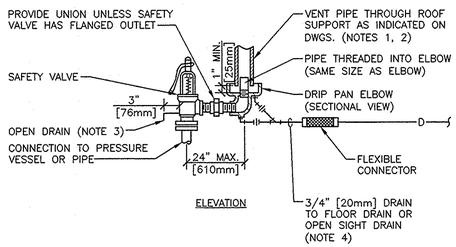
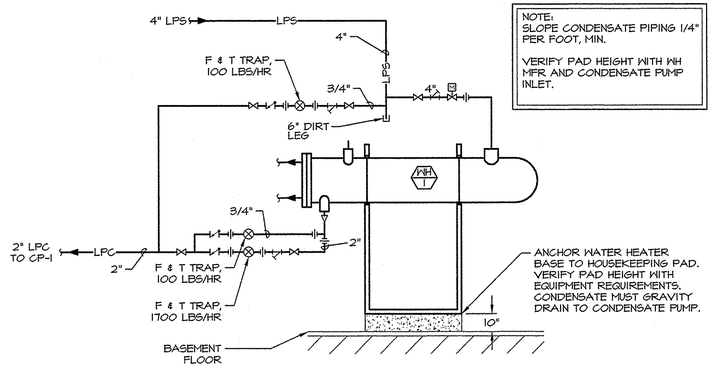
NOTES:

1. UNLESS OTHERWISE SHOWN ON THE DRAWINGS, SIZE THE VENT PIPE SO THAT STEAM IS NOT BLOWN OUT AT THE VENT PIPE ENTRANCE. UTILIZE THE CALCULATION METHOD CONTAINED IN ANSI B31.1. POWER PIPING CODE, APPENDIX II.
2. VENT PIPE SHALL TERMINATE 6' [1829mm] MIN. ABOVE FINISHED ROOF.
3. DISCHARGE OF DRAIN MUST BE DIRECTED AWAY FROM PLATFORMS OR OTHER AREAS WHICH PERSONNEL MAY OCCUPY.
4. DO NOT CONNECT ANY OTHER DRAIN TO THE DRIP PAN ELBOW DRAIN PIPE.



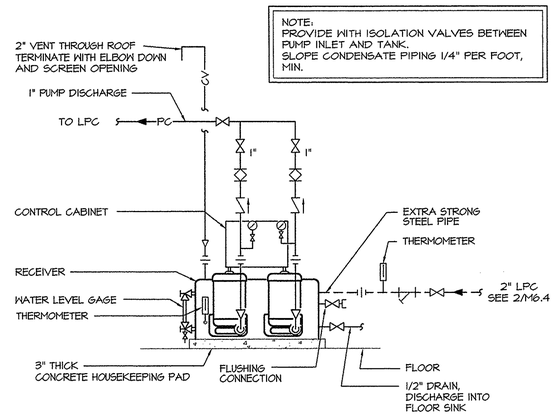
1 STEAM PRESSURE RELIEF VALVE
SCALE: NONE



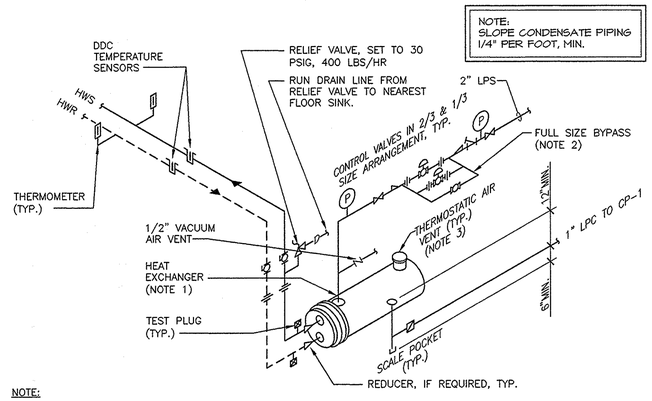
NOTE:
SLOPE CONDENSATE PIPING 1/4" PER FOOT, MIN.

VERIFY PAD HEIGHT WITH WH MFR AND CONDENSATE PUMP INLET.

2 WATER HEATER PIPING INSTALLATION
SCALE: NONE



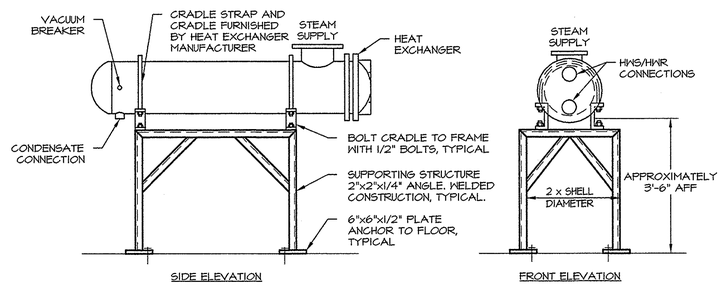
3 CONDENSATE PUMP INSTALLATION (CP-1)
SCALE: NONE



NOTE:

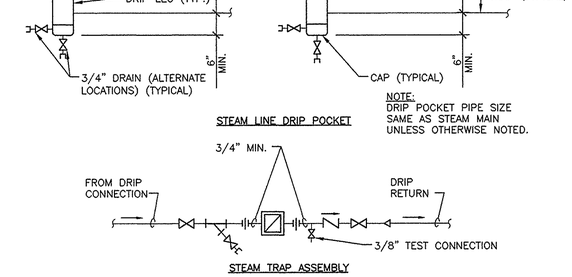
1. PROVIDE SADDLE SUPPORTS AND LEGS OR HANGERS FOR HEAT EXCHANGER. MOUNTING HEIGHT SHALL BE ADJUSTED TO FACILITATE GRAVITY RETURN OF STEAM CONDENSATE.
2. BYPASS SHALL BE THE SAME SIZE AS THE CONNECTIONS TO THE CONTROL VALVES.
3. CONTROL VALVES SHALL BE IN A $\frac{1}{3}$ AND $\frac{2}{3}$ SIZE ARRANGEMENT.

4 HEAT EXCHANGER - STEAM TO HOT WATER
SCALE: NONE



5 HEAT EXCHANGER SUPPORT
SCALE: NONE

NOTE:
USE F & T TRAPS FOR PROCESS HEATING.
USE INVERTED BUCKET TRAPS FOR DRIP LEGS.



6 STEAM LINE DRIP POCKET
STEAM TRAP ASSEMBLY
SCALE: NONE

Jul 31, 2014 - 3:17pm

S:\13-1130_mech\M-DET.dwg

REVISIONS	DATE

REGISTERED PROFESSIONAL ENGINEER 16,570 OREGON JANUARY 18, 1983 OSCAR J. ZUNIGA JR. RENEWAL DATE: 6-30-15

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DEPARTMENT OF VETERANS AFFAIRS

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DRAWING TITLE:
MECHANICAL DETAILS

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PROJECT TITLE
REPLACE DOM BLDG. 203

DRAWN BY:	DATE:	DRAWING NO.:
JDG	4 AUGUST 2014	M6.4
CHECK BY:	VA PROJECT NO.:	DWG.19 OF 22
OJZ	692-339	

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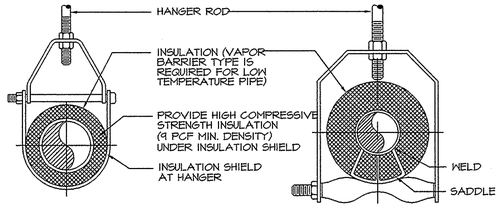
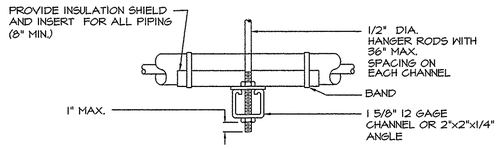


ADJUSTABLE CLEVIS HANGER TYPE 1 - SEE SPECIFICATIONS

ADJUSTABLE CLEVIS HANGER TYPE 43 - SEE SPECIFICATIONS

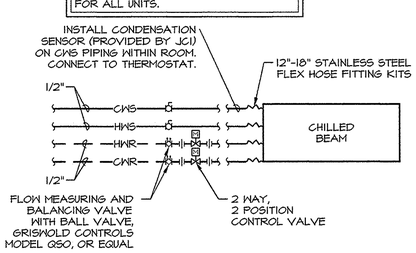


SIDE VIEW
TRAPEZE HANGER FOR UP TO 1000 LB. UNIFORM LOAD

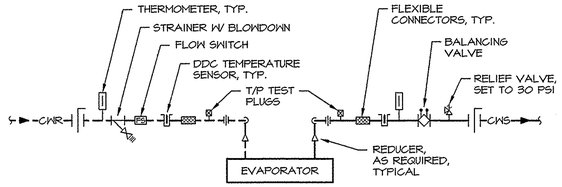
MAXIMUM PIPE/TUBING SUPPORT SPACING												
NOM. SIZE IN.	THRU 3/4	1	1 1/4	1 1/2	2	2 1/2	3	4	5	6	8	
PIPE FT.	7	7	7	9	10	11	12	14	16	17	19	
TUBING FT.	5 FT	6	7	8	8	9	10	12	13	14	16	
NOTE: FOR TRAPEZE HANGER TAKE SPACING OF SMALLEST SIZE ON TRAPEZE.												

1 TYPICAL PIPE HANGERS
SCALE: NONE

NOTE:
LOCATE SHUT-OFF AND CONTROL VALVES ALONG WALL ON ATTIC CATWALK IN ACCESSIBLE LOCATION FOR ALL UNITS.



2 CHILLED BEAM PIPING INSTALLATION
SCALE: NONE



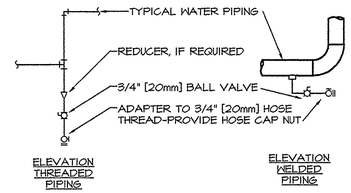
NOTES:
1. SOME ITEMS SHOWN ABOVE MAY BE PROVIDED BY THE CHILLER MFR.

2. COMPLETELY INSULATE ALL VALVES, STRAINER, FLOW SWITCH, FLEXIBLE CONNECTORS, ETC.

3. PROVIDE ALUMINUM JACKETING ON ALL EXPOSED, INSULATED PIPING.

4. SEE SHEET M3.5 FOR CONNECTIONS FOR PORTABLE CHILLER.

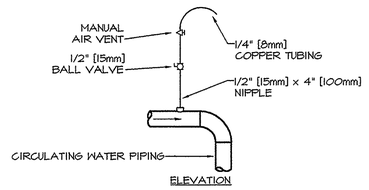
3 TYPICAL PIPING CONNECTIONS TO AIR COOLED WATER CHILLER
SCALE: NONE



TYPICAL CHILLED AND HOT WATER PIPING DRAIN VALVE CONNECTIONS

NOTES:
1. DRAIN ALL LOW POINTS AS INDICATED ABOVE.

2. WHERE SCALE POCKETS ARE SHOWN ON PIPE RISER DIAGRAMS AND/OR PLANS LOCATE DRAIN AT BOTTOM OF SCALE POCKET.

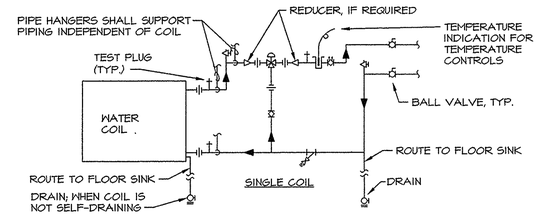


TYPICAL MANUAL AIR VENT

NOTES:
1. VENT ALL HIGH POINTS AS INDICATED ABOVE.

2. IF AUTOMATIC AIR VENTS ARE USED, PIPE DISCHARGE TO DRAIN.

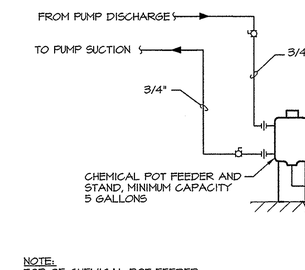
4 DRAIN VALVE AND AIR VENT CONNECTIONS (HYDRONIC SYSTEMS)
SCALE: NONE



NOTES:
1. WHEN COIL IS INCLUDED IN CASING MOUNTED ON VIBRATION ISOLATORS THE FIRST 2 HANGERS FOR EACH PIPE SHALL BE SPRING & NEOPRENE TYPE. TYPE "H" FOR 4" [100mm]Ø PIPE & SMALLER.

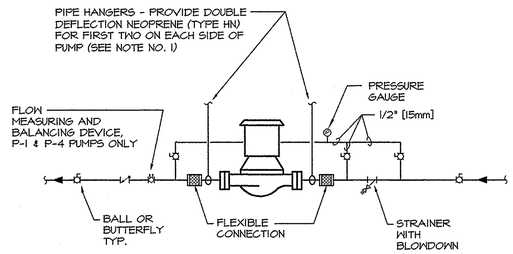
2. PIPING SHALL BE INSTALLED IN SUCH MANNER THAT IT WILL NOT BLOCK THE SWING OR USE OF ACCESS DOORS OR PANELS; NEITHER SHALL IT BLOCK THE SERVICING OF FILTERS, VALVES, OR EQUIPMENT.

5 TYPICAL CONNECTION TO WATER COILS
SCALE: NONE



NOTE:
TOP OF CHEMICAL POT FEEDER TANK SHALL NOT BE MORE THAN 4'-0" ABOVE FINISHED FLOOR.

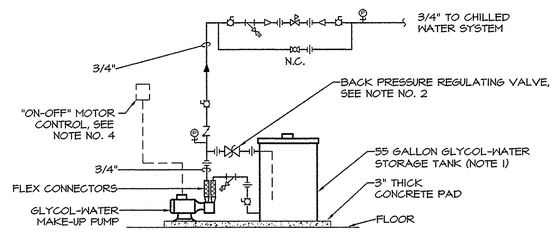
6 WATER TREATMENT - CLOSED SYSTEMS
SCALE: NONE



NOTES:
1. SUPPORT PUMP FROM PIPING ONLY. DO NOT SUPPORT PUMP FROM MOTOR.

2. ELIMINATE BALANCING DEVICE WHEN PUMP CONTROLLED BY VARIABLE SPEED DRIVE.

7 IN-LINE PUMPS - CONNECTIONS
SCALE: NONE



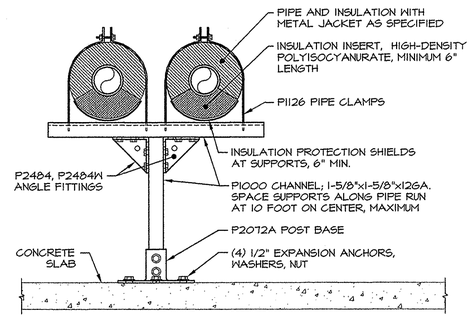
NOTES:
1. PROVIDE LOW WATER LEVEL ALARM. PROVIDE A LOW WATER LEVEL INDICATOR LIGHT AT A LOCATION SELECTED BY OWNER. RELIEF VALVE DRAIN SHALL RETURN TO TANK AS SHOWN ON THIS DETAIL.

2. SET REGULATING VALVE TO MAINTAIN MAKE-UP PRESSURE 15 PSIG [103 kPa] ABOVE HIGHEST SYSTEM PRV SETTING.

3. MAKE-UP PIPING SYSTEM DOES NOT REQUIRE INSULATION.

4. OPERATE PUMP MANUALLY AS REQUIRED TO FILL.

8 INDIRECT GLYCOL MAKE-UP SYSTEM (PIPING & CONTROLS)
SCALE: NONE



NOTE:
PART NUMBERS ARE TYCO "UNISTRUT". SIMILAR AND EQUAL MANUFACTURERS ARE ACCEPTABLE. PROVIDE ALL RECOMMENDED HARDWARE AND FASTENERS TO ASSEMBLE.

9 PIPE SUPPORT ON SLAB
SCALE:NONE

Jul 31, 2014 - 3:18pm

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REVISIONS	DATE

REGISTERED PROFESSIONAL ENGINEER 16,570 RENEWAL 6-30-15 OREGON JANUARY 19, 1993 OSCAR J. ZUNIGA JR.

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DEPARTMENT OF VETERANS AFFAIRS

SOUTHERN OREGON REHABILITATION CENTER & CLINICS

8495 CRATER LAKE HIGHWAY
WHITE CITY, OREGON

DRAWING TITLE:
MECHANICAL DETAILS

FULLY SPRINKLERED FACILITY

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PO Box 490
Medford, OR, 97501

PROJECT TITLE
REPLACE DOM BLDG. 203

DRAWN BY:	DATE:	DRAWING NO.:
JDG	4 AUGUST 2014	M6.5
CHECK BY:	VA PROJECT NO.:	DWG.20OF 22
OJZ	692-339	

US DEPARTMENT OF VETERANS AFFAIRS

GENERAL NOTES

A. CHILLED WATER PIPING TO BE TYPE 'L' COPPER.

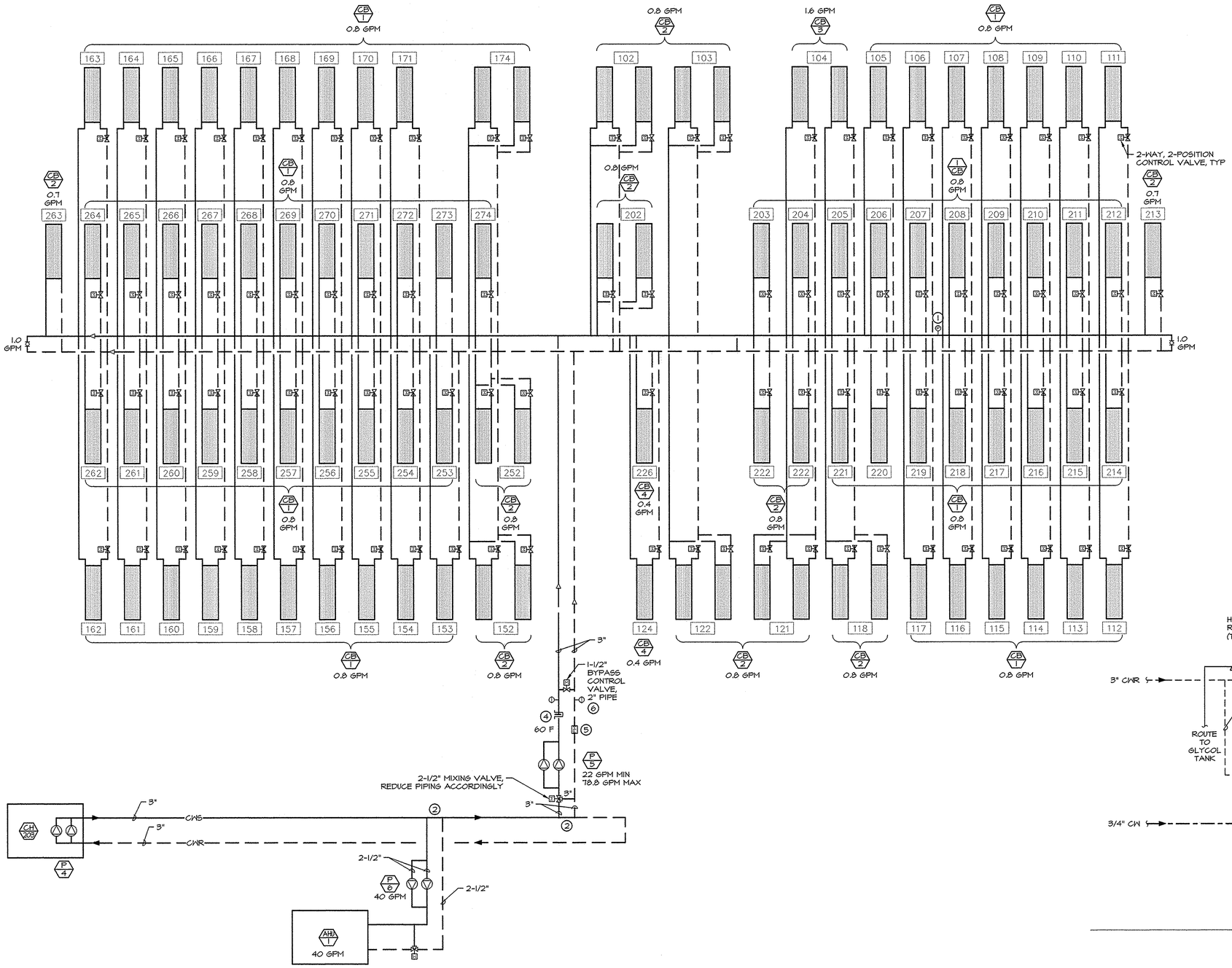
B. SEE FLOOR PLANS FOR PIPE SIZING WITHIN EACH WING.

C. PROVIDE AND INSTALL MANUAL AIR VENTS AT PIPING HIGH POINTS.

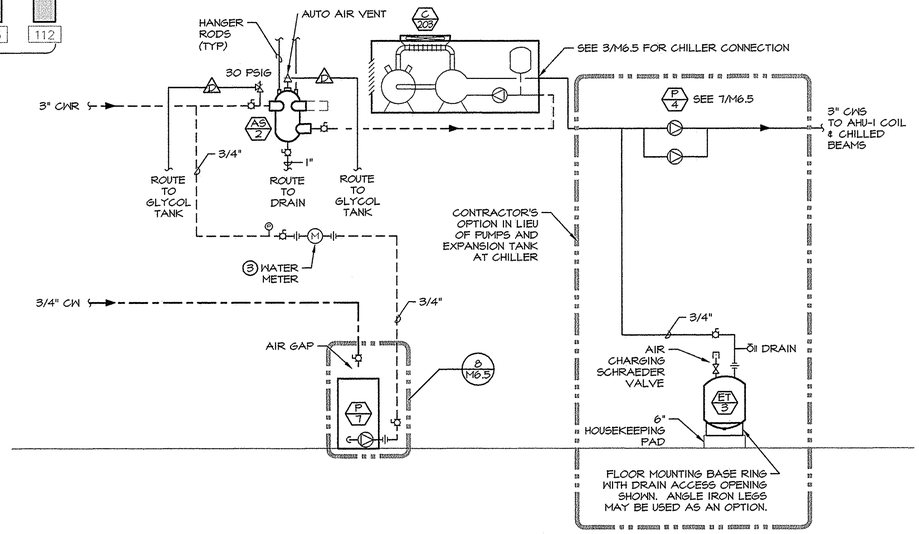
D. ALL CHILLED BEAM CONTROL VALVES SHALL BE INSTALLED ON WALL PIPING RACKS IN ATTIC CATWALK AREA.

KEYED NOTES

1. PRESSURE SENSOR FOR P-5, LOCATE APPROXIMATELY 2/3 DISTANCE FROM PUMP TO END OF LINE.
2. CLOSELY SPACED TEES (LESS THAN 18").
3. BADGER MODEL RECORDALL 25, BRONZE, 5/8" SIZE, OR EQUAL. METER SHALL RECORD IN GALLONS.
4. TEMPERATURE SENSOR WELL FOR LOOP TEMPERATURE CONTROL.
5. DUAL TURBINE INSERTION FLOW METER, PROVIDED BY T.C., INSTALLED BY M.C. ONICON MODEL F-1210, OR EQUAL. INSTALL PER MANUFACTURER'S RECOMMENDATIONS.
6. TEMPERATURE CONTROLS TO VERIFY SIZE OF BYPASS CONTROL VALVE.



1 CHILLED WATER PIPING SCHEMATIC
SCALE: NONE



2 CHILLED WATER PIPING SCHEMATIC
SCALE: NONE

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REVISIONS	DATE

REGISTERED PROFESSIONAL ENGINEER
16,570
EXPIRATE: 6-30-15
OREGON
JULY 18, 1997
OSCAR J. ZUNIGA JR.

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DEPARTMENT OF VETERANS AFFAIRS

SOUTHERN OREGON REHABILITATION CENTER & CLINICS

8495 CRATER LAKE HIGHWAY
WHITE CITY, OREGON

DRAWING TITLE:
CHILLED WATER PIPING SCHEMATIC

FULLY SPRINKLERED FACILITY

PROJECT TITLE
REPLACE DOM BLDG. 203

DRAWN BY:	DATE:	DRAWING NO.:
JDG	4 AUGUST 2014	M6.6
CHECK BY:	VA PROJECT NO.:	DWG. 21 OF 22
OJZ	692-339	

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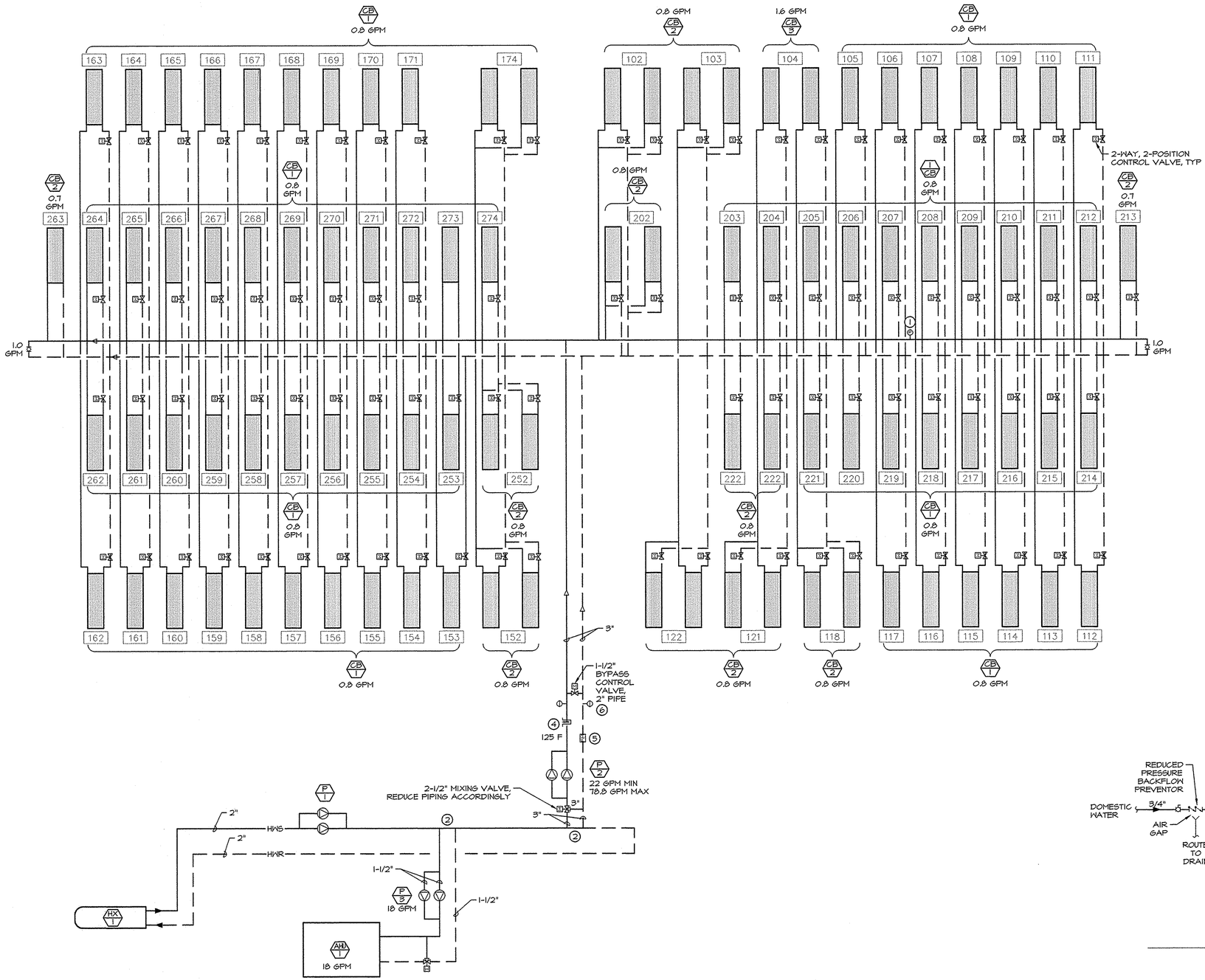
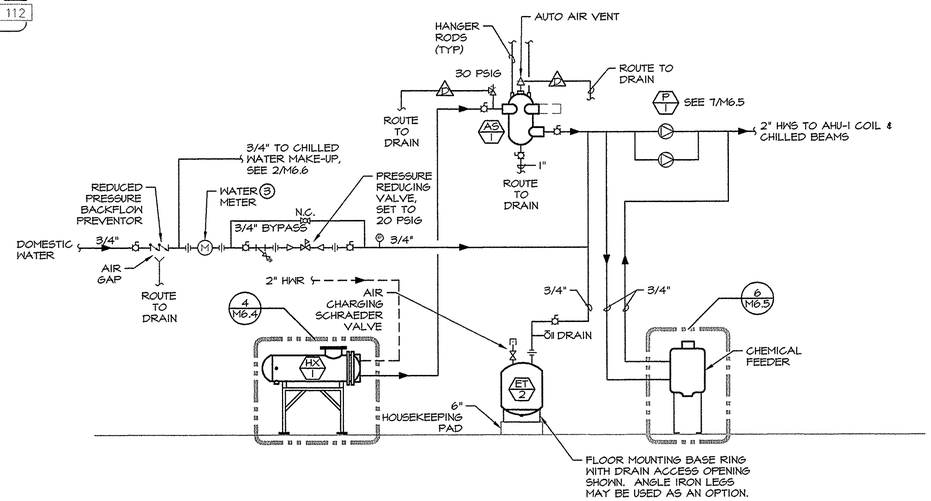


1 HEATING WATER PIPING SCHEMATIC
SCALE: NONE



2 HEATING WATER PIPING SCHEMATIC
SCALE: NONE

GENERAL NOTES

A. HEATING WATER PIPING TO BE TYPE 'L' COPPER.

B. SEE FLOOR PLANS FOR PIPE SIZING WITHIN EACH WING.

C. PROVIDE AND INSTALL MANUAL AIR VENTS AT PIPING HIGH POINTS.

D. ALL CHILLED BEAM CONTROL VALVES SHALL BE INSTALLED ON WALL PIPING RACKS IN ATTIC CATWALK AREA.

KEYED NOTES

1. PRESSURE SENSOR FOR P-2, LOCATE APPROXIMATELY 2/3 DISTANCE FROM PUMP TO END OF LINE.
2. CLOSELY SPACED TEES (LESS THAN 18").
3. BADGER MODEL RECORDALL 25, BRONZE, 5/8" SIZE, OR EQUAL. METER SHALL RECORD IN GALLONS.
4. TEMPERATURE SENSOR WELL FOR LOOP TEMPERATURE CONTROL.
5. DUAL TURBINE INSERTION FLOW METER, PROVIDED BY TEMPERATURE CONTROLS, INSTALLED BY M.C. ONICON MODEL F-1210, OR EQUAL. INSTALL PER MANUFACTURER'S RECOMMENDATIONS.
6. TEMPERATURE CONTROLS TO VERIFY SIZE OF BYPASS CONTROL VALVE.

REVISIONS	DATE

REGISTERED PROFESSIONAL ENGINEER 16,570 OREGON JULY 18, 1995 OSVAR J. ZUNIGA JR. EXPIRATION DATE: 6-30-15

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DEPARTMENT OF VETERANS AFFAIRS

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WHITE CITY, OREGON

DRAWING TITLE:
HEATING WATER PIPING SCHEMATIC

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PROJECT TITLE
REPLACE DOM BLDG. 203

DRAWN BY:	DATE:	DRAWING NO.:
JDG	4 AUGUST 2014	M6.7
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OJZ	692-339	

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PLUMBING ABBREVIATIONS

AFF	ABOVE FINISH FLOOR
ARCH	ARCHITECT OR ARCHITECTURAL
BOP	BOTTOM OF PIPE
CD	CONDENSATE DRAIN
CO	CLEAN-OUT
COG	CLEAN-OUT TO GRADE
CW	COLD WATER (POTABLE)
DF	DRINKING FOUNTAIN
DHW	DOMESTIC HOT WATER
DN	DOWN
DS	DOWN SPOUT
ET	EXPANSION TANK
FCO	FLOOR CLEAN-OUT
FD	FLOOR DRAIN
FF	FINISH FLOOR
FS	FLOOR SINK
FU	FIXTURE UNIT
GAL	GALLON(S)
GPM	GALLONS PER MINUTE
HB	HOSE BIBB
HD	HUB DRAIN
HR	HOT WATER RECIRCULATION (POTABLE)
HW	HOT WATER (POTABLE)
IE	INVERT ELEVATION
LAV	LAVATORY
MAX	MAXIMUM
MB	MOP BASIN
MBH	THOUSANDS OF BTU PER HOUR
MFR	MANUFACTURER
MIN	MINIMUM
NC	NORMALLY CLOSED
NO	NORMALLY OPEN
P	PUMP
PRV	PRESSURE REDUCING VALVE
PS	PUMPED STORM WATER
PSI	POUNDS/SQUARE INCH
REQ'D	REQUIRED
RPBP	REDUCED PRESSURE BACKFLOW PREVENTER
S	SINK
SH	SHOWER
SP	SUMP PUMP
SPEC	SPECIFICATION OR SPECIFIED
SS	SERVICE SINK OR STAINLESS STEEL
TP	TRAP PRIMER
TYP	TYPICAL
U	URINAL
V	VENT
VTR	VENT THRU ROOF
WC	WATER CLOSET
WCO	WALL CLEAN-OUT
WH	WATER HEATER
WHA	WATER HAMMER ARRESTOR

PLUMBING SYMBOLS

- HOSE BIBB
- PUMP
- WATER HAMMER ARRESTOR
- THERMOMETER
- PRESSURE GAUGE
- PRESSURE GAUGE W/ COCK
- AUTOMATIC AIR VENT (AAV)
- MANUAL AIR VENT
- PRESSURE/THERMOMETER PLUG
- FLEXIBLE BRAIDED HOSE
- STRAINER
- STRAINER W/ BLOWDOWN VALVE & HB CONNECTION
- REDUCED PIPE SIZE
- DIRECTION OF FLOW
- UNION
- FLANGE
- QUICK DISCONNECT
- RELIEF VALVE
- TEMP. / PRESSURE RELIEF VALVE (TPV)
- CONTROL VALVE
- PRESSURE REDUCING VALVE (PRV)
- GLOBE VALVE
- 2-WAY MOTORIZED VALVE
- 3-WAY MOTORIZED VALVE
- SOLENOID VALVE
- GAS COCK
- PLUG VALVE
- BUTTERFLY VALVE
- GATE VALVE
- CHECK VALVE
- FULL PORT BALL VALVE
- DOUBLE CHECK VALVE
- FLOW MEASURING & BALANCING VALVE
- BALANCING VALVE
- VALVE IN RISER
- GAUGE WELL
- FLOW SWITCH
- METER
- PIPE DOWN
- PIPE UP
- TEE DOWN
- TEE UP
- P-TRAP
- ELBOW
- TEE
- CAP
- WALL CLEAN-OUT
- FLOOR CLEAN-OUT
- CLEAN-OUT TO GRADE
- HUB DRAIN
- FLOOR DRAIN/ROOF DRAIN
- FLOOR SINK (NO GRATE)
- FLOOR SINK (1/2 GRATE)
- FLOOR SINK (3/4 GRATE)

PLUMBING SYMBOLS

——A——	COMPRESSED AIR
——CD——	CONDENSATE DRAIN
——CDO——	CONDENSATE DRAIN OVERFLOW
——D——	INDIRECT DRAIN
– – –F– – –	FIRE PROTECTION PIPING
——G——	NATURAL GAS
——IRR——	IRRIGATION WATER
——LPG——	LIQUIFIED PETROLEUM GAS
——OD——	OVERFLOW DRAIN
——RD——	RAIN DRAIN
——SAN——	BUILDING SANITARY DRAIN, ABOVE GRADE
– – –SAN– – –	BUILDING SANITARY DRAIN, BELOW GRADE
– – –GW– – –	BUILDING GREASE WASTE, BELOW GRADE
– – –SD– – –	BUILDING STORM DRAIN, BELOW GRADE
——TW——	TEMPERED WATER
– – –V– – –	VENT PIPE
——VAC——	VACUUM
	POTABLE COLD WATER
	POTABLE HOT WATER
	POTABLE HOT WATER RECIRCULATION

NOTE: ABBREVIATIONS AND SYMBOLS ARE MARQUESS & ASSOCIATES, INC. STANDARDIZED SYMBOL LEGENDS. AS SUCH, ALL SYMBOLS SHOWN MAY NOT APPEAR ON OR WITHIN THIS SET OF CONTRACT DOCUMENTS.

GENERAL SYMBOLS

<E>	EXISTING
<N>	NEW
<NL>	NEW LOCATION
<R>	REMOVE
<REL>	RELOCATE
<C>	CAP FOR FUTURE
	POINT OF NEW CONNECTION
	KEYED NOTE
	REVISION NUMBER
	FIXTURE TAG
	FIXTURE UNITS OVER PIPE SIZE
	EQUIPMENT TAG EQUIPMENT NUMBER
	SECTION (LETTER) OR DETAIL (NUMERICAL) DESIGNATION SHEET NUMBER
	SECTION DESIGNATION SHEET NUMBER
	POINT OF CONTINUATION
	GENERAL BREAK
	LINE BREAK
	REMOVE
	ON DEMOLITION PLANS, INDICATES ITEMS TO BE REMOVED

GENERAL PLUMBING NOTES

1. PROVIDE ALL LABOR, MATERIALS, AND EQUIPMENT NECESSARY TO CONSTRUCT A COMPLETE, OPERATIONAL PLUMBING SYSTEM FOR THE ENTIRE PROJECT AS SHOWN ON THESE DRAWINGS, INCLUDING ALL NECESSARY FEES AND PERMITS.
2. THE ENTIRE INSTALLATION SHALL CONFORM TO THE MOST RECENTLY ADOPTED REQUIREMENTS OF THE BUILDING, MECHANICAL CODE, PLUMBING CODE, ELECTRICAL CODE, AND ALL OTHER APPLICABLE CITY, COUNTY, STATE, AND FEDERAL CODES AND REGULATIONS IN EFFECT AT THE DATE OF THE BID. CONFORM TO ANY CODES, RULES, REGULATIONS AND REQUIREMENTS THAT THE PROJECT OWNER HAS.
3. PRIOR TO FABRICATION AND INSTALLATION THE CONTRACTOR SHALL COORDINATE THE INSTALLATION OF ALL PLUMBING WORK WITH ALL OTHER TRADES AND ANY CONTRACTOR HIRED DIRECTLY BY THE OWNER. WHERE CONFLICTS MAY OCCUR, THEY SHALL BE RESOLVED PRIOR TO INSTALLATION.
4. THE DRAWINGS SHOW THE GENERAL DESIGN, ARRANGEMENT AND THE EXTENT OF THE SYSTEM. CONTRACTOR SHALL MAKE SUCH SLIGHT ALTERATIONS AS MAY BE NECESSARY TO MAKE THE SYSTEM COMPLETE AND OPERATIONAL IN ACCORDANCE WITH THE DESIGN INTENT. MAJOR DEVIATIONS SUCH AS CHANGES IN COMPONENT SIZES, WEIGHTS, QUANTITIES, OR MATERIAL REQUIRE PRIOR APPROVAL BY THE RE/COTR..
5. THE WORKING DRAWINGS ARE DIAGRAMMATIC. BECAUSE OF THE SMALL SCALE OF THE DRAWINGS, THEY DO NOT SHOW EVERY OFFSET, BEND OR ELBOW NECESSARY FOR THE COMPLETE INSTALLATION IN THE SPACE PROVIDED. ALL LOCATIONS FOR PLUMBING EQUIPMENT AND PIPING SHALL BE CHECKED AND COORDINATED WITH THE ARCHITECTURAL, MECHANICAL, STRUCTURAL AND ELECTRICAL DRAWINGS.
6. ALL EQUIPMENT SHALL BE INSTALLED IN STRICT ACCORDANCE WITH THE EQUIPMENT MANUFACTURER'S RECOMMENDATIONS. PROVIDE ALL FITTINGS, TRANSITIONS, VALVES, AND OTHER DEVICES AND ACCESSORIES REQUIRED FOR A COMPLETE, WORKABLE INSTALLATION.
7. PROVIDE FOR EXPANSION OR MOVEMENT OF ALL PIPING.
8. PROVIDE WATER HAMMER ARRESTORS (SHOCK ABSORBERS) AT ALL PIPE LOCATIONS WHERE VALVE CLOSURES (SUCH AS FLUSH VALVES) MAY CAUSE WATER HAMMER OR RESULT IN EXCESSIVE PIPE VIBRATION OR MOVEMENT.

PLUMBING DRAWING INDEX

NOTE: <u>All items that require access, such as for operating, cleaning, servicing, maintenance, and calibration, shall be easily and safely accessible by persons standing at floor level, or standing on permanent platforms, without the use of portable ladders. Examples of these items include, but are not limited to: all types of valves, filters and strainers, transmitters, control devices.</u> Prior to commencing installation work, refer conflicts between this requirement and contract drawings to the RE/COTR for resolution.

EXPANSION TANK SCHEDULE

TAG	SERVICE	MFR	MODEL	TYPE	TANK VOLUME	ACCEPT. VOLUME	CHARGE PRESS.	WEIGHT (FULL)	NOTES
ET-1	DOM. HOT WATER	AMTROL, OR EQUAL	ST-12	DIAPHRAGM	4.4 GAL	2.2 GAL	60 PSIG	9 LBS	-
ET-2	HEATING WATER	TACO, OR EQUAL	CBX-130	BLADDER	34 GAL	19 GAL	20 PSIG	358 LBS	(1)
ET-3	CHILLED WATER	-	-	-	-	5 GAL	20 PSIG	-	(2)

(1) TANK SHALL HAVE REMOVABLE BLADDER FOR INSPECTION.
(2) EXPANSION TANK INCLUDED WITH CHILLER, SEE CHILLER SCHEDULE.

STEAM WATER HEATER SCHEDULE

TAG	MFR	MODEL	SERVICE	STEAM PRESSURE	STEAM LBS/HR	WATER CAPACITY	WATER TEMP. RISE	WATER MIN. RECIRC.	ELECTRICAL VOLTS	ELECTRICAL PHASE	ELECTRICAL HP	LOCATION	NOTES
WH-1	ARMSTRONG, OR EQUAL	D535DW	DOMESTIC HOT WATER	10 PSIG	1700	40 GPM	95 F	10 GPM	120	1	1 AMP	MECH 001	(1) (2)

(1) SEMI-INSTANTANEOUS DESIGN; DOUBLE-WALL TUBING, ELECTRONIC "BRAIN" CONTROLS, 10 S.F. FOOTPRINT.
(2) SET HEATER TO 145 F.

PLUMBING PUMP SCHEDULE

TAG	SERVICE	MFR	MODEL NUMBER	TYPE	IMP. SIZE	GPM	HEAD FT H20	MOTOR RPM	MOTOR SPEED	ELECTRICAL VOLTS	ELECTRICAL PHASE	ELECTRICAL HP	NOTES
P-8	DOM. HOT WATER	TACO, OR EQUAL	0014	INLINE	-	10	16	3250	CONSTANT	115	1	1/8	(1) (2) (3) (7)
SP-1	WASTE WATER	LITTLE GIANT, OR EQUAL	HT-6E-CIA-FS	SUMP	-	15	15	–	CONSTANT	115	1	1/3 HP, 10.1 AMPS	(1) (4) (5) (7)
SP-2	STORM WATER	ZOELLER	6123	SUBMERSIBLE	6.375"	275	25	1750	CONSTANT	208	3	3	(1) (6) (7)

(1) QTY = 2.
(2) STARTER/DISCONNECT SWITCH BY ELECTRICAL
(3) PROVIDE WITH 24-HOUR TIMER.
(4) PUMP TO HAVE INTEGRAL FLOAT CONTROL AND BE RATED FOR 200 F WATER. PUMP TO HANDLE 1/2" DIAMETER SOLIDS. PUMP HAS PLUG CORD.
(5) PROVIDE WITH LITTLE GIANT MODEL HWD-115, OR EQUAL, INDOOR DUPLEX PUMP ALTERNATOR. PUMPS SHALL LEAD-LAG; BOTH PUMPS SHALL NOT OPERATE AT THE SAME TIME.
(6) 4" DISCHARGE. PROVIDE WITH BRONZE IMPELLER, THERMAL SENSOR AND MOISTURE DETECTION SYSTEM, SILICON CARBIDE SEALS, REMOVAL SYSTEM (PACKAGE TO INCLUDE GUIDERAILS, S.S. LIFT CABLES, AND CORD HANGER), TETHERED FLOAT SWITCHES AND BRACKETS, AND DUPLEX ALTERNATING PUMP CONTROL PANEL WITH DISCONNECT SWITCHES WITH OVERLOAD PROTECTION, SEE SPECIFICATION SECTION 221429. PUMP TO HANDLE 2" SOLIDS, MIN.
(7) CONTRACTOR SHALL PROVIDE ONE SPARE PUMP TO OWNER (IN ADDITION TO THE INSTALLED PUMPS).

PLUMBING FIXTURE SCHEDULE

TAG	TYPE	MFR	DESCRIPTION: FIXTURE	DESCRIPTION: TRIM	TRAP	BRANCH CONNECTIONS: WASTE	VENT	CW	HW	NOTES
P-101	WATER CLOSET	PRO-FLO, OR EQUAL	1.28 GAL/FLUSH; FLUSH VALVE: MOEN, OR EQUAL	-	-	4"	2"	1"	-	(1) (2)
P-202	URINAL	PRO-FLO, OR EQUAL	0.5 GAL/FLUSH; FLUSH VALVE: MOEN, OR EQUAL	-	-	3"	2"	1"	-	(1) (2)
P-417	LAV, COUNTERTOP	PRO-FLO, OR EQUAL	FAUCET: MOEN, OR EQUAL	-	OFFSET	2"	1-1/2"	1/2"	1/2"	(3) (4) (7)
P-502	UTILITY SINK	MUSTEE, OR EQUAL	-	-	P-TRAP	3"	2"	3/4"	3/4"	(7)
P-517	LAUNDRY SINK	JUST, OR EQUAL	STAINLESS; FAUCET: MOEN, OR EQUAL	-	P-TRAP	2"	1-1/2"	1/2"	1/2"	(7)
P-518	LAUNDRY TUB	JUST, OR EQUAL	A-46666	WALL FAUCET	OFFSET	2"	1-1/2"	1/2"	1/2"	(3) (7)
P-528	SINK, COUNTERTOP	- JUST, OR EQUAL	STAINLESS; FAUCET: MOEN, OR EQUAL	-	P-TRAP	2"	1-1/2"	1/2"	1/2"	(7)
P-608	DRINKING FOUNTAIN	ELKAY, OR EQUAL	LZS8WS(VR)SK	-	P-TRAP	2"	1-1/2"	1/2"	-	(13)
P-701	SHOWER	FIBER-FAB, OR EQUAL	48x48	-	P-TRAP	2"	1-1/2"	1/2"	1/2"	(5) (6) (12)
P-702	SHOWER	FIBER-FAB, OR EQUAL	60x48	-	P-TRAP	2"	1-1/2"	1/2"	1/2"	(5) (6) (12)
P-801	HOSE BIBB	WOODFORD, OR EQUAL	NON-FREEZE, LOOSE KEY	-	-	-	-	3/4"	-	(10)
FD-1	FLOOR DRAIN, TYPE C	SEE SPECIFICATION SECTION 221300	SMITH 2005Y02-B06NB, OR EQUAL	6" SQUARE GRATE	P-TRAP	2"	2"	1/2"	-	(8) (11)
FD-2	FLOOR DRAIN, TYPE B	SEE SPECIFICATION SECTION 221300	SMITH 2350, OR EQUAL	ROUND GRATE	P-TRAP	2"	2"	1/2"	-	(9) (11)
FD-3	FLOOR DRAIN, TYPE B	SEE SPECIFICATION SECTION 221300	SMITH 2350, OR EQUAL	ROUND GRATE	P-TRAP	3"	2"	1/2"	-	(9)
FD-4	FLOOR DRAIN, TYPE D	SEE SPECIFICATION SECTION 221300	SMITH 2009 BODY W/ 2051 STRAINER, OR EQUAL	ROUND GRATE	P-TRAP	2"	2"	1/2"	-	(9) (11)
FD-5	FLOOR DRAIN, TYPE C	SEE SPECIFICATION SECTION 221300	SMITH 2005 BODY W/ 2051 STRAINER, OR EQUAL	ROUND GRATE	P-TRAP	2"	2"	1/2"	-	(9) (11)
FS-1	FLOOR SINK, TYPE O	SEE SPECIFICATION SECTION 221300	-	PARTIAL GRATE	P-TRAP	2"	2"	1/2"	-	(9)
FS-2	FLOOR SINK, TYPE O	SEE SPECIFICATION SECTION 221300	-	PARTIAL GRATE	P-TRAP	3"	2"	1/2"	-	(9)
WB-1	WALL BOX	SIOUX CHIEF, OR EQUAL	8525	-	P-TRAP	2"	1-1/2"	1/2"	1/2"	(7)
TP-1	TRAP PRIMER	PRECISION PLBG. PROD., OR EQUAL	PO-500	SERVICE VALVE	-	-	-	1/2"	-	-

(1) PROVIDE 1/2" WATER HAMMER ARRESTOR ON CW LINE SERVING FIXTURE, SEE SPECIFICATIONS SECTION 221100.
(2) PROVIDE WITH MOEN, OR EQUAL, DUAL-FLUSH FLUSHOMETER. FLUSHOMETERS SHALL HAVE TRAP PRIMER CONNECTION FOR FLOOR DRAINS.
(3) INSULATE ALL EXPOSED PIPING BELOW LAVATORY OR WALL-HUNG SINK (CW, HW & SAN).
(4) LAV SHALL HAVE 1.0 GPM VANDAL PROOF LAMINAR FLOW DEVICE.
(5) SHOWER VALVE TO BE MOEN 8371HD, OR EQUAL.
(6) HAND SHOWER TO BE MOEN 52224GBM15, OR EQUAL. PROVIDE AND INSTALL CHRONOMITE LABORATORIES, INC. OMNI MODEL A-710-VR, OR EQUAL, 1.5 GPM INLINE FLOW CONTROL.
(7) PROVIDE THERMOSTATIC MIXING VALVE TO TEMPER WATER SUPPLY TO FAUCET. POWERS LM495 SERIES, OR EQUAL. SET HOT WATER LIMIT STOP TO 105-110F.
(8) PROVIDE WITH TRAP PRIMER CONNECTION. ROUTE PIPING FROM FLUSH VALVE TO FLOOR DRAIN.
(9) PROVIDE WITH TRAP PRIMER CONNECTION. ROUTE 1/2" PIPING FROM NEAREST CW SUPPLY TO TP-1 (SEE SPEC. SECTION 221300) AND FLOOR DRAIN.
(10) PROVIDE TEN SPARE LOOSE HOSE BIBB KEYS TO OWNER.
(11) VENT NOT REQUIRED WHEN BRANCH LINE IS LESS THAN 6' IN LENGTH TO A VENTED LINE.
(12) PROVIDE AND INSTALL SILICONE COLLAPSIBLE WATER DAM, ALL IN ONE MOBILITY, OR EQUAL. CONTACT: 503-255-5005.
(13) WITH BOTTLE FILLER.

WATER FIXTURE UNITS - NEW

DESCRIPTION	QUANTITY PRIVATE	QUANTITY PUBLIC	WATER SUPPLY: PRIVATE CW F.U. (1)	PRIVATE HW F.U. (1)	PRIVATE COMBINED (1)	PUBLIC CW F.U. (1)	PUBLIC HW F.U. (1)	PUBLIC COMBINED (1)	TOTAL
Water Closet, Flushvalve	39	0	NOTE (2)	0	NOTE (2)	NOTE (2)	0	NOTE (2)	455
Urinal, Flushvalve	1	0	NOTE (2)	0	NOTE (2)	NOTE (2)	0	NOTE (2)	20
Lavatory	39	0	0.75	0.75	1	0.75	0.75	1.00	39
Service Sink	0	6	-	-	-	2.25	2.25	3	18
Shower	37	0	1.5	1.5	2	1.5	1.5	2	74
Drinking Fountain	0	2	-	-	-	0.5	0	0.5	1
Breakroom Sink	0	1	-	-	-	1.13	1.13	1.5	1.5
Laundry Washer	0	4	-	-	-	3	3	4	16
Hose Bibb	0	1	2.5	0	2.5	2.5	0	2.5	2.5
Hose Bibb (each additional)	0	9	1	0	1	1	0	1	9
								TOTAL DEMAND =	636

(1) FIXTURE UNIT VALUES OBTAINED FROM DEPARTMENT OF VETERANS AFFAIRS PLUMBING DESIGN MANUAL FOR DOMICILIARY PROJECTS, MARCH 2011, AND OREGON PLUMBING SPECIALTY CODE, 2011 EDITION.
(2) FLUSHOMETER VALVE FIXTURE UNITS FOR WATER CLOSETS AND URINALS OBTAINED FROM TABLE 6-7.

MINIMUM DAILY SERVICE PRESSURE:	65 PSI
STATIC HEAD LOSS (0.434 PSI/FT) x 20':	8.6 PSI
PRESSURE REQUIRED AT FIXTURE:	35 PSI
PRESSURE AVAILABE FOR FRICTION LOSS:	21.4 PSI
TOTAL EQUIVALENT PIPE LENGTH:	500'
MAXIMUM FRICTION LOSS: (PRESSURE AVAILABLE * 100/EQUIVALENT LENGTH)	4.3 PSI/100 FT
BUILDING SUPPLY SIZE:	3"

MAI Project Number: 13-1130
P: 541-772-7115
F: 541-779-4079
1120 East Jackson
PO Box 490
Medford, OR, 97501
MARQUESS & ASSOCIATES INC

REVISIONS	DATE

REGISTERED PROFESSIONAL ENGINEER 16,570 RENEW DATE: 6-30-16 OREGON MAY 18, 1993 OSCAR J. ZUNIGA JR.

kistler + small + white architects
RAYMOND KISTLER, ARCHITECT
552 A STREET
ASHLAND, OREGON 97520
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DEPARTMENT OF VETERANS AFFAIRS
SOUTHERN OREGON REHABILITATION CENTER & CLINICS
8495 CRATER LAKE HIGHWAY
WHITE CITY, OREGON

DRAWING TITLE: PLUMBING LEGEND & SCHEDULES

FULLY SPRINKLERED FACILITY

PROJECT TITLE: REPLACE DOM BLDG. 203
DRAWN BY: JDG | DATE: 4 AUGUST 2014
CHECK BY: OJZ | VA PROJECT NO.: 692-339
DRAWING NO.: P1.1
DWG. 1 OF 12

US DEPARTMENT OF VETERANS AFFAIRS

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GENERAL NOTES

A. PLUMBING PLAN SHOWS GENERAL ROUTING AND ARRANGEMENT OF PIPING. SEE RISER DIAGRAMS ON SHEET P4.1 FOR PIPE SIZING, CHANGE IN SIZING LOCATION, INSTRUMENTATION AND SANITARY PIPING CLEANOUTS.

B. ALL PIPING SHALL BE SLEEVED AND SEALED THROUGH ANY STRUCTURE OR CONCRETE.

C. SLOPE ALL SANITARY PIPING 1/4" PER FOOT, MINIMUM, UNLESS NOTED OTHERWISE.

D. THE FOLLOWING SANITARY PIPING SHALL BE CAST IRON:
1. PIPING BELOW GRADE.
2. WASTE RISERS.
3. PIPE PENETRATIONS THROUGH CONCRETE/METAL DECK ASSEMBLY AT BASEMENT CEILING.
4. PIPING WITH WASTE WATER THAT COULD EXCEED 140°F.
5. PIPING DESIGNATED WITH HEAVY BOLD LINES.

OTHER WASTE AND VENT PIPING MAY BE SCHEDULE 40 PVC, SEE SPECIFICATION SECTION 221300.

E. DOMESTIC WATER PIPING SHALL BE TYPE 'L' COPPER.

F. SEE SPECIFICATION SECTION 230711 FOR PIPING INSULATION.

G. PROVIDE AND INSTALL CLEANOUTS ON BELOW GRADE STORM PIPING AT ITS UPPER TERMINAL AND FOR EACH AGGREGATE HORIZONTAL CHANGE OF DIRECTION EXCEEDING 135°.

H. SLOPE HORIZONTAL STORM DRAIN PIPING AT 1/8" PER FOOT, MIN.

I. FIRE CAULK ALL PIPE PENETRATIONS THROUGH FIRE-RATED WALLS, SEE ARCHITECTURAL, 8/M6.3, AND SPECIFICATIONS SECTION 078400. IN ADDITION, THE FOLLOWING PIPE & DUCT PENETRATIONS SHALL BE FIRESTOPPED:
-FIRE AND SMOKE BARRIERS (SEE ARCH)
-FIRE PARTITIONS (SEE ARCH)
-CORRIDOR WALLS (SEE ARCH)
-FLOORS & CEILINGS
-SHAFT WALLS & FLOORS
CONTRACTOR MAY USE PRE-ENGINEERED CAST-IN-PLACE LISTED SLEEVES FOR PIPE PENETRATIONS IN BASEMENT CEILING, HOLDRITE HYDRO FLAME, OR EQUAL.

J. CONTRACTOR SHALL COORDINATE ROUTING AND SPACE REQUIREMENTS OF PIPING WITH STRUCTURAL MEMBERS AND ALL OTHER TRADES INCLUDING HVAC, FIRE PROTECTION, ELECTRICAL, AND COMMUNICATIONS/DATA.

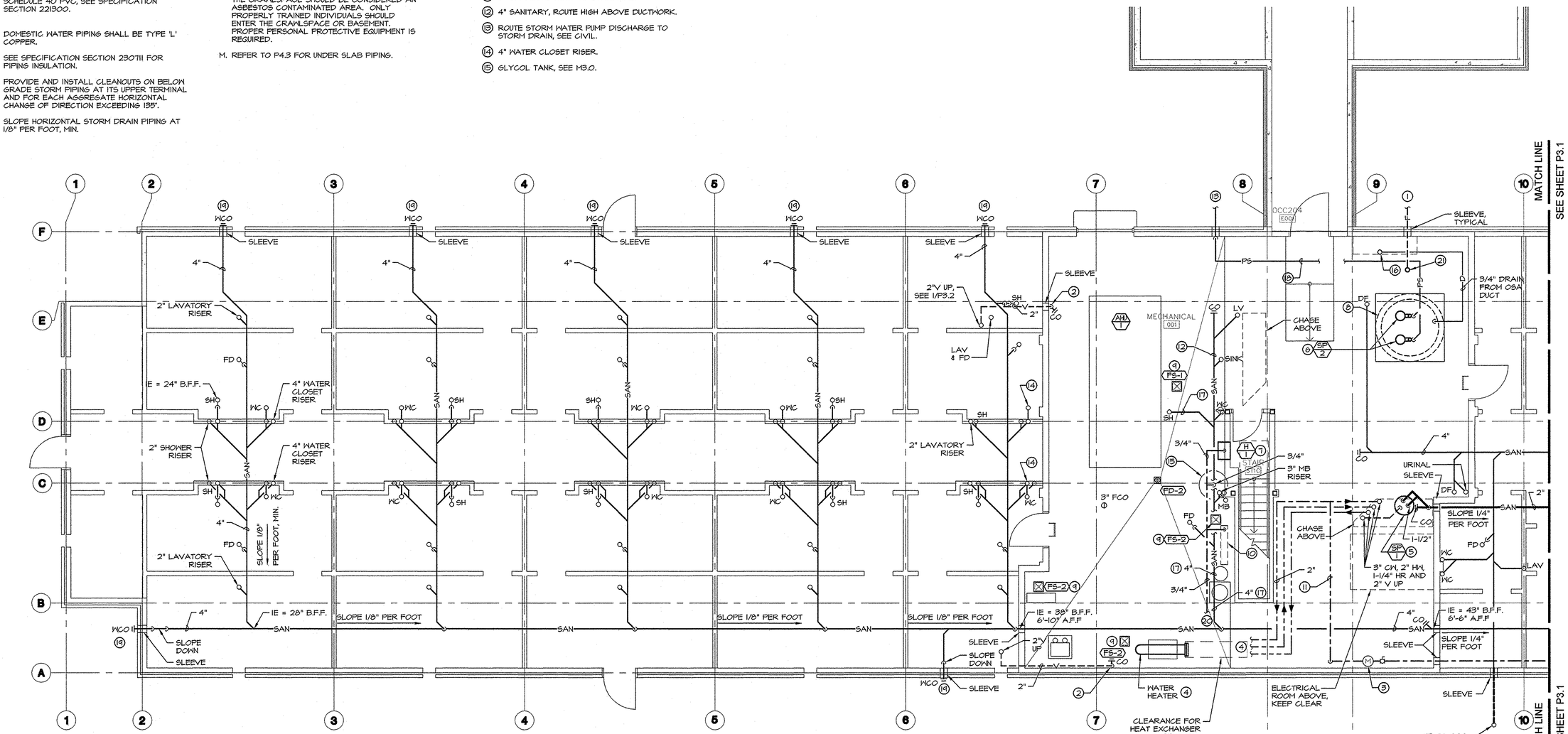
K. AHU CONDENSATE AND HUMIDIFIER DRAIN PIPING SHALL BE TYPE 'L' COPPER.

L. UNLESS ABATED AND APPROVED FOR ENTRY, THE CRAWLSPACE SHOULD BE CONSIDERED AN ASBESTOS CONTAMINATED AREA. ONLY PROPERLY TRAINED INDIVIDUALS SHOULD ENTER THE CRAWLSPACE OR BASEMENT. PROPER PERSONAL PROTECTIVE EQUIPMENT IS REQUIRED.

M. REFER TO P4.3 FOR UNDER SLAB PIPING.

KEYED NOTES

1. SEE CIVIL FOR CONTINUATION.
2. SEE SHEET P4.3 FOR CONTINUATION.
3. P41 WATER METER ON MAIN DOMESTIC CW LINE, INTEGRATE WITH METASYS, SEE SPECIFICATION SECTION 251010.
4. SEE 1/P4.2 & 2/M6.4 FOR WATER HEATER PIPING INSTALLATION.
5. SEE 3/P4.2 FOR PUMP INSTALLATION.
6. SEE 7/P4.2 FOR PUMP INSTALLATION.
7. SEE 3/M6.3 FOR HUMIDIFIER INSTALLATION.
8. STORM WATER SUMP, SEE STRUCTURAL. SEE 7/P4.2 FOR STORM WATER EJECTOR INSTALLATION.
9. SEE 6/P4.2 FOR FLOOR SINK INSTALLATION.
10. SEE 2/M6.1 FOR MAKE-UP WATER ASSEMBLY.
11. 3" CW, ROUTE TIGHT TO STRUCTURE.
12. 4" SANITARY, ROUTE HIGH ABOVE DUCTWORK.
13. ROUTE STORM WATER PUMP DISCHARGE TO STORM DRAIN, SEE CIVIL.
14. 4" WATER CLOSET RISER.
15. GLYCOL TANK, SEE M3.0.
16. CONNECT 3/4" DRAIN TO BOTTOM OF OSA DUCT, SEE M3.0.
17. ROUTE PIPING AS HIGH AS POSSIBLE.
18. 4" PUMPED STORM, ROUTE TIGHT TO STRUCTURE. COORDINATE ROUTING WITH OSA DUCTWORK.
19. USE SQUARE FRAME AND COVER, J.R. SMITH MODEL 4434-NB, OR EQUAL. USE NICKEL BRONZE FRAME AND COVER.
20. CONNECT TO CW PIPING SERVING HEATING WATER SYSTEM, SEE M6.6.
21. FIRE RISER - SEE DETAIL 3/P4.3



N
W
S
E
TRUE NORTH

1 PLUMBING BASEMENT PLAN - SOUTH

SCALE: 3/16" = 1'-0"

MAI Project Number: 13-1130

MARQUESS & ASSOCIATES INC
P: 541-772-7115
F: 541-779-4079
1120 East Jackson
PO Box 490
Medford, OR, 97501

REVISIONS	DATE

REGISTERED PROFESSIONAL ENGINEER
16,570
EXPIRATION DATE: 6-30-15
OREGON
MAY 18, 1982
OSCAR J. ZUNIGA JR.

kistler+ small +white architects

RAYMOND KISTLER, ARCHITECT
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DEPARTMENT OF VETERANS AFFAIRS

SOUTHERN OREGON REHABILITATION CENTER & CLINICS

8495 CRATER LAKE HIGHWAY
WHITE CITY, OREGON

DRAWING TITLE:
PLUMBING
BASEMENT PLAN - SOUTH

FULLY SPRINKLERED FACILITY

PROJECT TITLE
REPLACE DOM BLDG. 203

DRAWN BY:	DATE:	DRAWING NO.:
JDG	4 AUGUST 2014	P3.0
CHECK BY:	VA PROJECT NO.:	DWG. 2 OF 12
OJZ	692-339	

US DEPARTMENT OF VETERANS AFFAIRS

Jul 31, 2014 - 12:29pm

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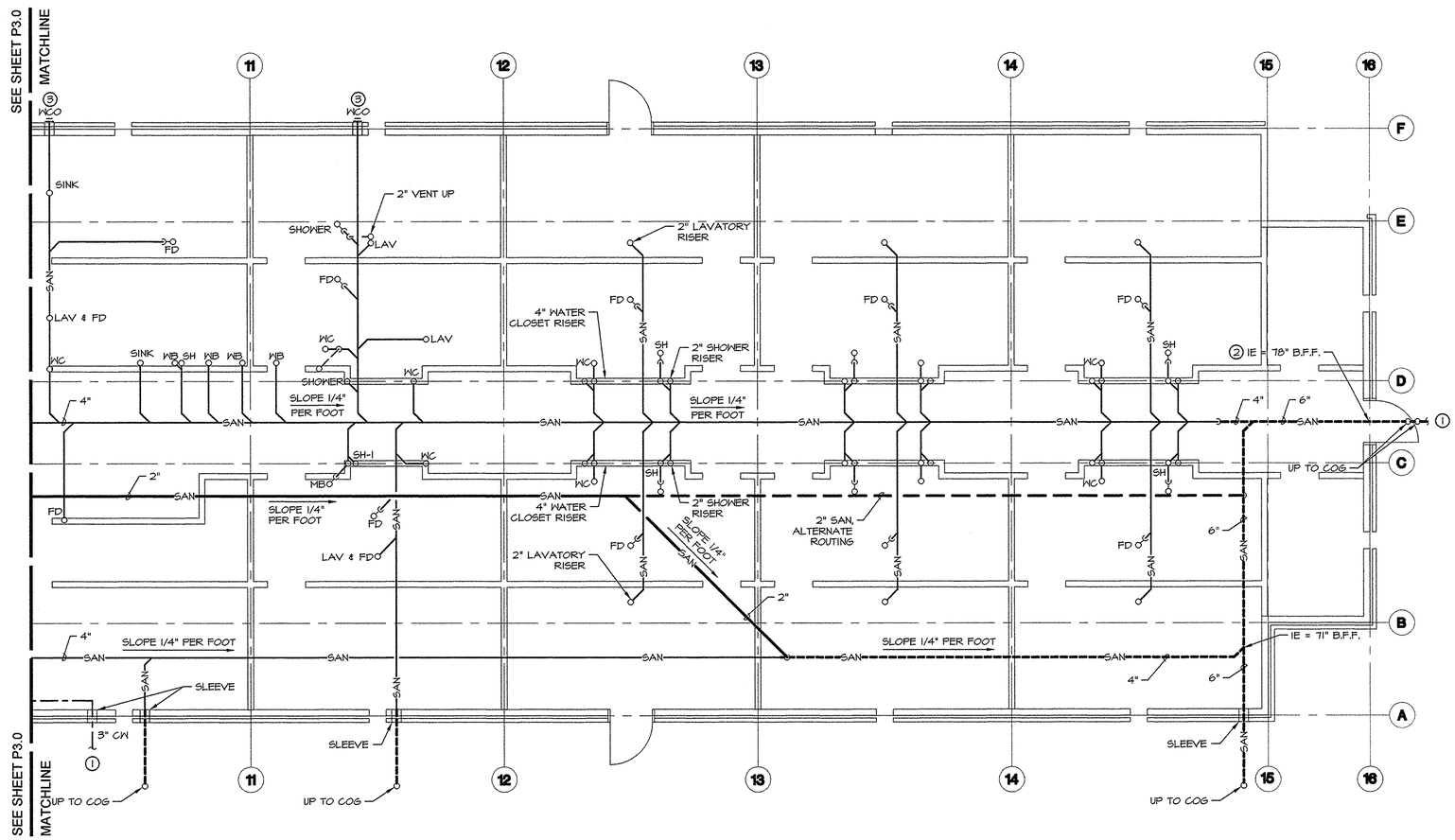

W S N E TRUE NORTH

1 PLUMBING CRAWLSPACE PLAN - NORTH

SCALE: 3/16" = 1'-0"

GENERAL NOTES

A. PLUMBING PLAN SHOWS GENERAL ROUTING AND ARRANGEMENT OF PIPING. SEE RISER DIAGRAMS ON SHEET P4.1 FOR PIPE SIZING, CHANGE IN SIZING LOCATION, INSTRUMENTATION AND SANITARY PIPING CLEANOUTS.

B. ALL PIPING SHALL BE SLEEVED AND SEALED THROUGH ANY STRUCTURE OR CONCRETE.

C. SLOPE ALL SANITARY PIPING 1/4" PER FOOT, MINIMUM, UNLESS NOTED OTHERWISE.

D. THE FOLLOWING SANITARY PIPING SHALL BE CAST IRON:
   1. PIPING BELOW GRADE.
   2. WASTE RISERS.
   3. EXPOSED WASTE PIPING IN BASEMENT.
   4. PIPING WITH WASTE WATER THAT COULD EXCEED 140°F.
   5. PIPING DESIGNATED WITH HEAVY BOLD LINES.

   OTHER WASTE AND VENT PIPING MAY BE SCHEDULE 40 PVC, SEE SPECIFICATION SECTION 221300.

E. FIRE CAULK ALL PIPE PENETRATIONS THROUGH FIRE-RATED WALLS, SEE ARCHITECTURAL 8/M6.3, AND SPECIFICATIONS SECTION 078400. IN ADDITION, THE FOLLOWING PIPE & DUCT PENETRATIONS SHALL BE FIRESTOPPED:
   -FIRE AND SMOKE BARRIERS (SEE ARCH)
   -FIRE PARTITIONS (SEE ARCH)
   -CORRIDOR WALLS (SEE ARCH)
   -FLOORS & CEILINGS
   -SHAFT WALLS & FLOORS

F. CONTRACTOR SHALL COORDINATE ROUTING AND SPACE REQUIREMENTS OF PIPING WITH STRUCTURAL MEMBERS AND ALL OTHER TRADES INCLUDING HVAC, FIRE PROTECTION, ELECTRICAL, AND COMMUNICATIONS/DATA.

G. CONDENSATE PIPING SHALL BE TYPE 'L' COPPER.

KEYED NOTES

(1) SEE CIVIL FOR CONTINUATION.

(2) ROUTE WASTE LINE UNDER FOOTING WITH TOP OF PIPE A MINIMUM 4" BELOW BOTTOM OF FOOTING.

(3) USE SQUARE FRAME AND COVER, J.R. SMITH MODEL 4434-NB, OR EQUAL. USE NICKEL BRONZE FRAME AND COVER.

Jul 31, 2014 - 12:29pm

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REVISIONS	DATE

REGISTERED PROFESSIONAL ENGINEER 16,570 RENEWAL DATE 6-30-15 OREGON JULY 18, 1993 OSCAR J. ZUNIGA, JR.

kistler+ small +white architects

RAYMOND KISTLER, ARCHITECT
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DEPARTMENT OF VETERANS AFFAIRS

SOUTHERN OREGON REHABILITATION CENTER & CLINICS

8495 CRATER LAKE HIGHWAY
WHITE CITY, OREGON

DRAWING TITLE:

PLUMBING
BASEMENT PLAN - NORTH

FULLY SPRINKLERED FACILITY

MAI Project Number: 13-1130
MARQUESS & ASSOCIATES INC
P: 541-772-7115
F: 541-779-4079
1120 East Jackson
PO Box 490
Medford, OR, 97501

PROJECT TITLE
REPLACE DOM BLDG. 203

DRAWN BY:	DATE:	DRAWING NO.:
JDG	4 AUGUST 2014	P3.1
CHECK BY:	VA PROJECT NO.:	DWG. 3 OF 12
OJZ	692-339	

US DEPARTMENT OF VETERANS AFFAIRS

GENERAL NOTES

A. PLUMBING PLAN SHOWS GENERAL ROUTING AND ARRANGEMENT OF PIPING. SEE RISER DIAGRAMS ON SHEET P4.1 FOR PIPE SIZING, CHANGE IN SIZING LOCATION, INSTRUMENTATION AND SANITARY PIPING CLEANOUTS.

B. TYPICAL PLUMBING AT SHEARWALLS: ALL PLUMBING PENETRATIONS SHALL BE DRILLED NO LARGER THAN ONE INCH GREATER IN DIAMETER THAN PIPE SIZE. DO NOT CUT WALL PLATES OR BLOCKING AT SHEARWALLS. SEE STRUCTURAL PLANS FOR LOCATIONS OF SHEARWALLS.

C. WASTE AND VENT PIPING SHALL BE SCHED 40 PVC OR NO-HUB CAST IRON, UNLESS OTHERWISE NOTED. WASTE RISERS SHALL BE NO-HUB CAST IRON.

D. DOMESTIC WATER PIPING SHALL BE TYPE 'L' COPPER OR PEX WHERE NOT SHOWN AS RIGID PIPE.

E. SEE SPECIFICATION SECTION 230711 FOR PIPING INSULATION.

F. ALL PIPING SHALL BE SLEEVED AND SEALED THROUGH ANY STRUCTURE OR CONCRETE.

G. COORDINATE PLUMBING VENT LOCATIONS WITH MECHANICAL. LOCATE PLUMBING VENTS 10'-0" FROM ANY BUILDING OPENING OR HVAC AIR INTAKE, MINIMUM.

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J. MAINTAIN 2" CLEARANCE BETWEEN TOP OF CABLE TRAY AND CROSSING PIPING.

K. FIRE CAULK ALL PIPE PENETRATIONS THROUGH FIRE-RATED WALLS, SEE ARCHITECTURAL, 8/M6.3, AND SPECIFICATIONS SECTION 078400. IN ADDITION, THE FOLLOWING PIPE & DUCT PENETRATIONS SHALL BE FIRESTOPPED:
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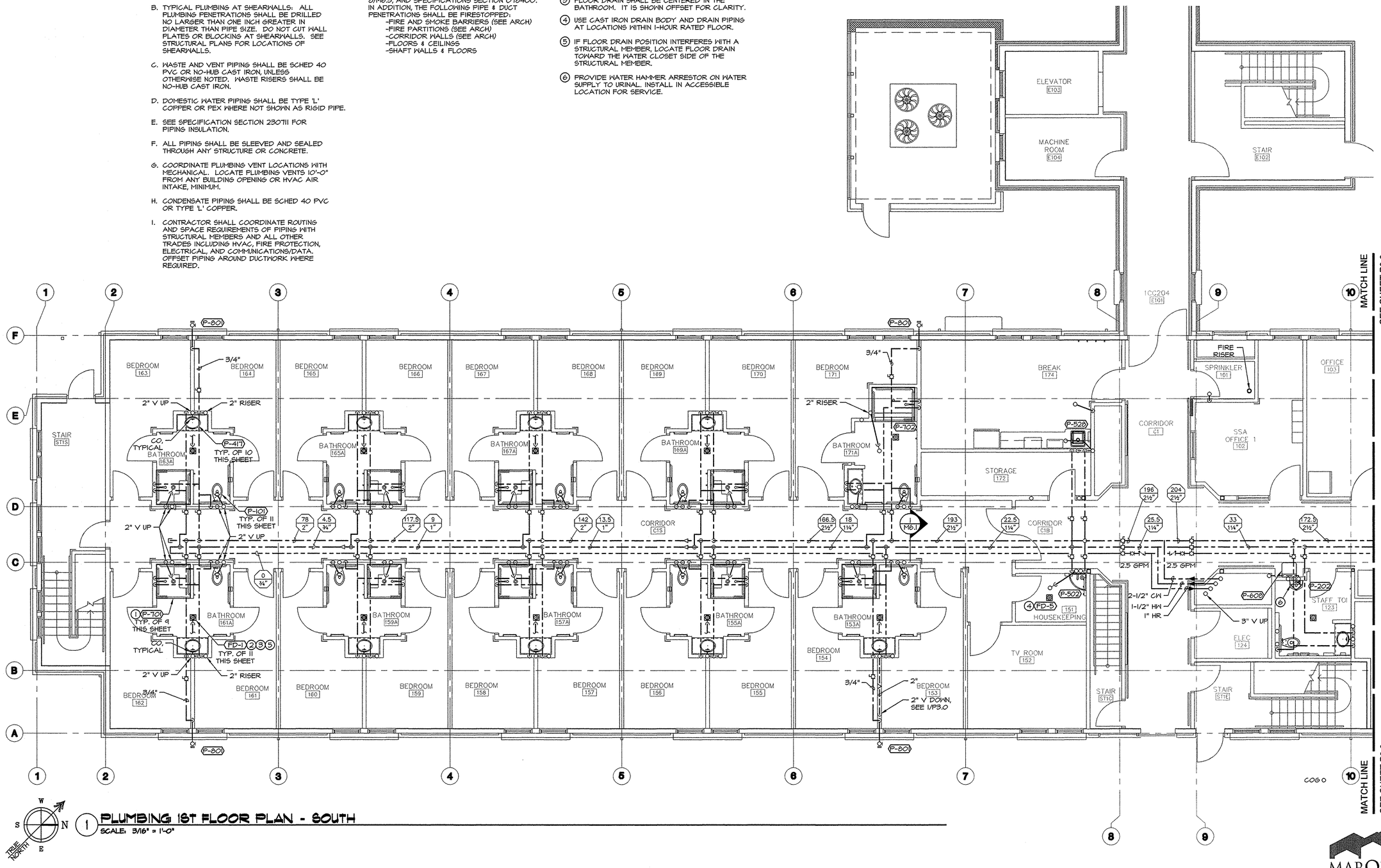
KEYED NOTES

1. SEE ARCHITECTURAL FOR SHOWER INSTALLATION.
2. TRAP PRIMER TO BE INTEGRATED WITH FLUSH VALVE, SEE PLUMBING FIXTURE SCHEDULE.
3. FLOOR DRAIN SHALL BE CENTERED IN THE BATHROOM. IT IS SHOWN OFFSET FOR CLARITY.
4. USE CAST IRON DRAIN BODY AND DRAIN PIPING AT LOCATIONS WITHIN 1-HOUR RATED FLOOR.
5. IF FLOOR DRAIN POSITION INTERFERES WITH A STRUCTURAL MEMBER, LOCATE FLOOR DRAIN TOWARD THE WATER CLOSET SIDE OF THE STRUCTURAL MEMBER.
6. PROVIDE WATER HAMMER ARRESTOR ON WATER SUPPLY TO URINAL. INSTALL IN ACCESSIBLE LOCATION FOR SERVICE.



1 PLUMBING 1ST FLOOR PLAN - SOUTH
SCALE: 3/16" = 1'-0"

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8495 CRATER LAKE HIGHWAY
WHITE CITY, OREGON

DRAWING TITLE:
PLUMBING
1ST FLOOR PLAN - SOUTH
FULLY SPRINKLERED FACILITY

PROJECT TITLE
REPLACE DOM BLDG. 203

DRAWN BY:	DATE:	DRAWING NO.:
JDG	4 AUGUST 2014	P3.2
CHECK BY:	VA PROJECT NO.:	DWG. 4 OF 12
OJZ	692-339	

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Jul 31, 2014 - 12:32pm
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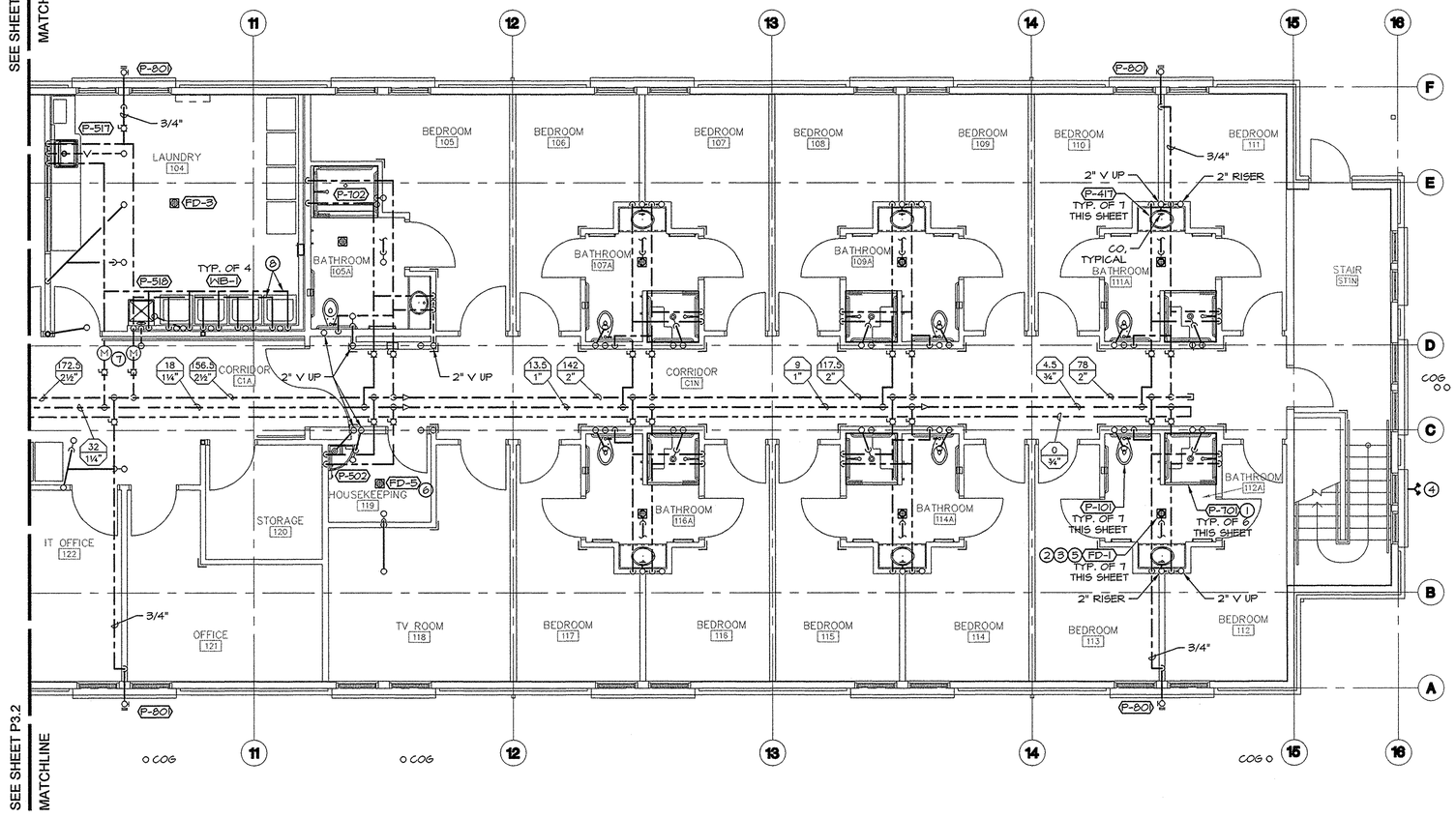

GENERAL NOTES

A. PLUMBING PLAN SHOWS GENERAL ROUTING AND ARRANGEMENT OF PIPING. SEE RISER DIAGRAMS ON SHEET P4.1 FOR PIPE SIZING, CHANGE IN SIZING LOCATION, INSTRUMENTATION AND SANITARY PIPING CLEANOUTS.

B. TYPICAL PLUMBING AT SHEARWALLS: ALL PLUMBING PENETRATIONS SHALL BE DRILLED NO LARGER THAN ONE INCH GREATER IN DIAMETER THAN PIPE SIZE. DO NOT CUT WALL PLATES OR BLOCKING AT SHEARWALLS. SEE STRUCTURAL PLANS FOR LOCATIONS OF SHEARWALLS.

C. WASTE AND VENT PIPING SHALL BE SCHED 40 PVC OR NO-HUB CAST IRON, UNLESS OTHERWISE NOTED. WASTE RISERS SHALL BE NO-HUB CAST IRON.

D. DOMESTIC WATER PIPING SHALL BE TYPE 'L' COPPER OR PEX WHERE NOT SHOWN AS RIGID PIPE.

E. SEE SPECIFICATION SECTION 230711 FOR PIPING INSULATION.

F. ALL PIPING SHALL BE SLEEVED AND SEALED THROUGH ANY STRUCTURE OR CONCRETE.

G. COORDINATE PLUMBING VENT LOCATIONS WITH MECHANICAL. LOCATE PLUMBING VENTS 10'-0" FROM ANY BUILDING OPENING OR HVAC AIR INTAKE, MINIMUM.

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K. FIRE CAULK ALL PIPE PENETRATIONS THROUGH FIRE-RATED WALLS, SEE ARCHITECTURAL, 8/M6.3, AND SPECIFICATIONS SECTION 078400. IN ADDITION, THE FOLLOWING PIPE & DUCT PENETRATIONS SHALL BE FIRESTOPPED:
- -FIRE AND SMOKE BARRIERS (SEE ARCH)
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- -CORRIDOR WALLS (SEE ARCH)
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KEYED NOTES

1. SEE ARCHITECTURAL FOR SHOWER INSTALLATION.
2. TRAP PRIMER TO BE INTEGRATED WITH FLUSH VALVE, SEE PLUMBING FIXTURE SCHEDULE.
3. FLOOR DRAIN SHALL BE CENTERED IN THE BATHROOM. IT IS SHOWN OFFSET FOR CLARITY.
4. FIRE DEPARTMENT CONNECTION AT 40" ABOVE GRADE, VERIFY EXACT LOCATION WITH OWNER.
5. IF FLOOR DRAIN POSITION INTERFERES WITH A STRUCTURAL MEMBER, LOCATE FLOOR DRAIN TOWARD THE WATER CLOSET SIDE OF THE STRUCTURAL MEMBER.
6. USE CAST IRON DRAIN BODY AND DRAIN PIPING AT LOCATIONS WITHIN 1-HOUR RATED FLOOR.
7. WATER METERS ON LAUNDRY DOMESTIC CW AND HW LINES, INTEGRATE WITH METASYS; SEE SPECIFICATIONS SECTION 251010.
8. PROVIDE WATER HAMMER ARRESTOR ON WATER SUPPLY TO CLOTHES WASHER. INSTALL IN ACCESSIBLE LOCATION FOR SERVICE.

W S N E TRUE NORTH

1 PLUMBING 1ST FLOOR PLAN - NORTH

SCALE: 3/16" = 1'-0"

MAI Project Number: 13-1130

MARQUESS & ASSOCIATES INC
P: 541-772-7115
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PO Box 490
Medford, OR, 97501

REVISIONS	DATE

REGISTERED PROFESSIONAL ENGINEER 16,570 OREGON MAY 18, 1993 OSCAR J. ZUNIGA JR. RENEWAL 6-30-15

kistler + small + white architects
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DEPARTMENT OF VETERANS AFFAIRS

SOUTHERN OREGON REHABILITATION CENTER & CLINICS

8495 CRATER LAKE HIGHWAY
WHITE CITY, OREGON

DRAWING TITLE:
PLUMBING
1ST FLOOR PLAN - NORTH

FULLY SPRINKLERED FACILITY

PROJECT TITLE
REPLACE DOM BLDG. 203

DRAWN BY:	DATE:	DRAWING NO.:
JDG	4 AUGUST 2014	P3.3
CHECK BY: OJZ	VA PROJECT NO.: 692-339	DWG. 5 OF 12

US DEPARTMENT OF VETERANS AFFAIRS

Jul 31, 2014 - 12:32pm
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GENERAL NOTES

A. PLUMBING PLAN SHOWS GENERAL ROUTING AND ARRANGEMENT OF PIPING. SEE RISER DIAGRAMS ON SHEET P4.1 FOR PIPE SIZING, CHANGE IN SIZING LOCATION, INSTRUMENTATION AND SANITARY PIPING CLEANOUTS.

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E. SEE SPECIFICATION SECTION 230711 FOR PIPING INSULATION.

F. ALL PIPING SHALL BE SLEEVED AND SEALED THROUGH ANY STRUCTURE OR CONCRETE.

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KEYED NOTES

(1) TRAP PRIMER TO BE INTEGRATED WITH FLUSH VALVE, SEE PLUMBING FIXTURE SCHEDULE.

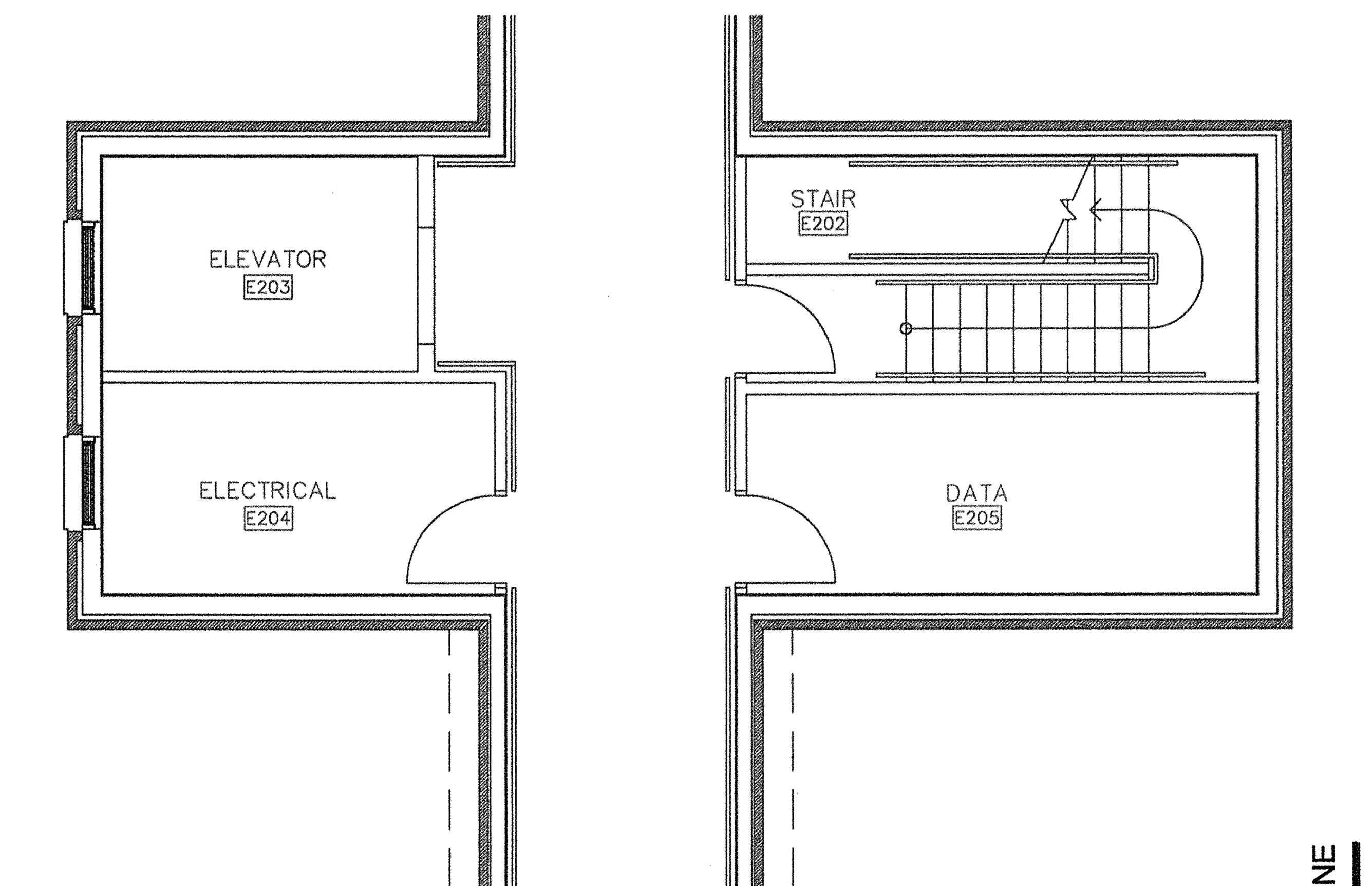
(2) SEE ARCHITECTURAL FOR SHOWER INSTALLATION.

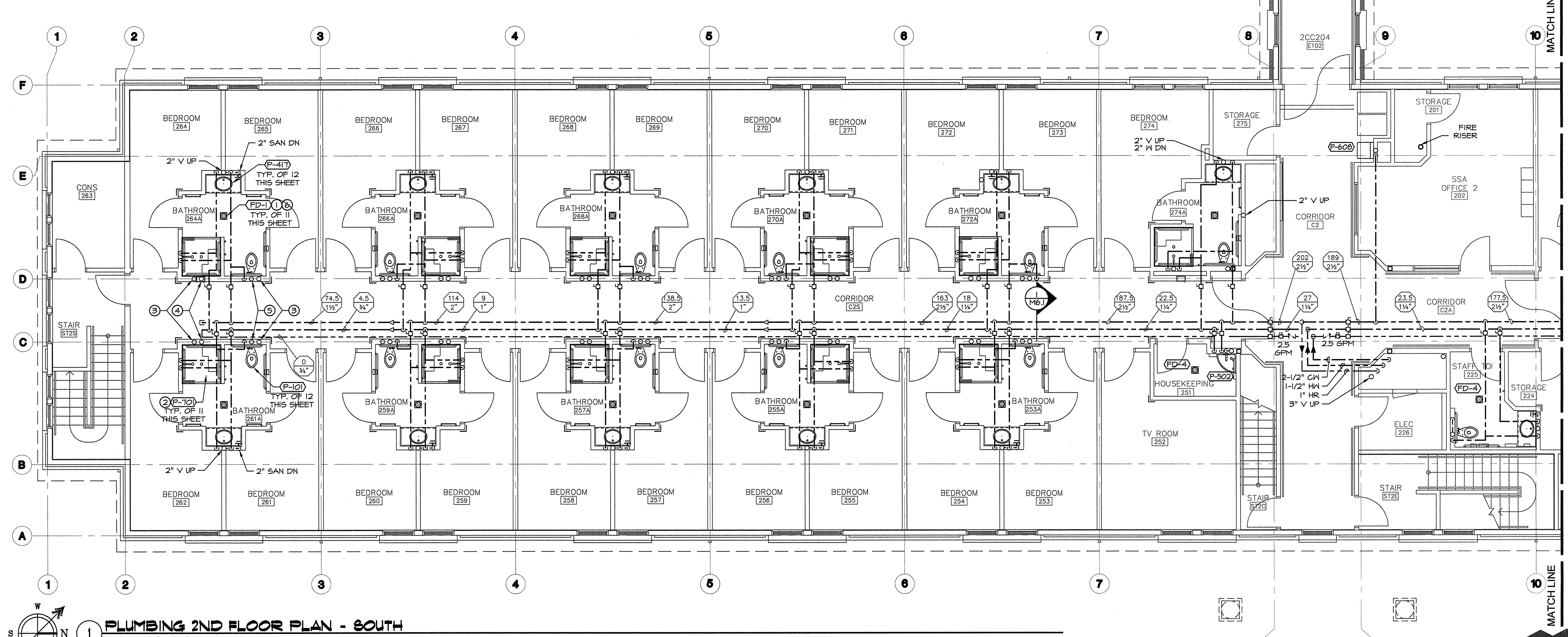
(3) 2" VENT UP.

(4) 2" SANITARY DOWN AND 2" VENT UP.

(5) 4" SANITARY DOWN AND 2" VENT UP.

(6) IF FLOOR DRAIN POSITION INTERFERES WITH A STRUCTURAL MEMBER, LOCATE FLOOR DRAIN TOWARD THE WATER CLOSET SIDE OF THE STRUCTURAL MEMBER.





(1) PLUMBING 2ND FLOOR PLAN - SOUTH
SCALE: 3/16" = 1'-0"

REVISIONS	DATE

REGISTERED PROFESSIONAL ENGINEER 16,570 OREGON MAY 18, 1993 OSCAR J. ZUNIGA JR.
RENEWS: JUNE 30, 2016

kistler + small + white architects

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8495 CRATER LAKE HIGHWAY
WHITE CITY, OREGON

DRAWING TITLE:
PLUMBING
2ND FLOOR PLAN - SOUTH

FULLY SPRINKLERED FACILITY

MAI Project Number: 13-1130
MARQUESS & ASSOCIATES INC
P: 541-772-7115
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1120 East Jackson
PO Box 490
Medford, OR, 97501

PROJECT TITLE: REPLACE DOM BLDG. 203

DRAWN BY:	DATE:	DRAWING NO.:
JDG	4 AUGUST 2014	P3.4
CHECK BY: OJZ	VA PROJECT NO.: 692-339	DWG. 6 OF 12

US DEPARTMENT OF VETERANS AFFAIRS

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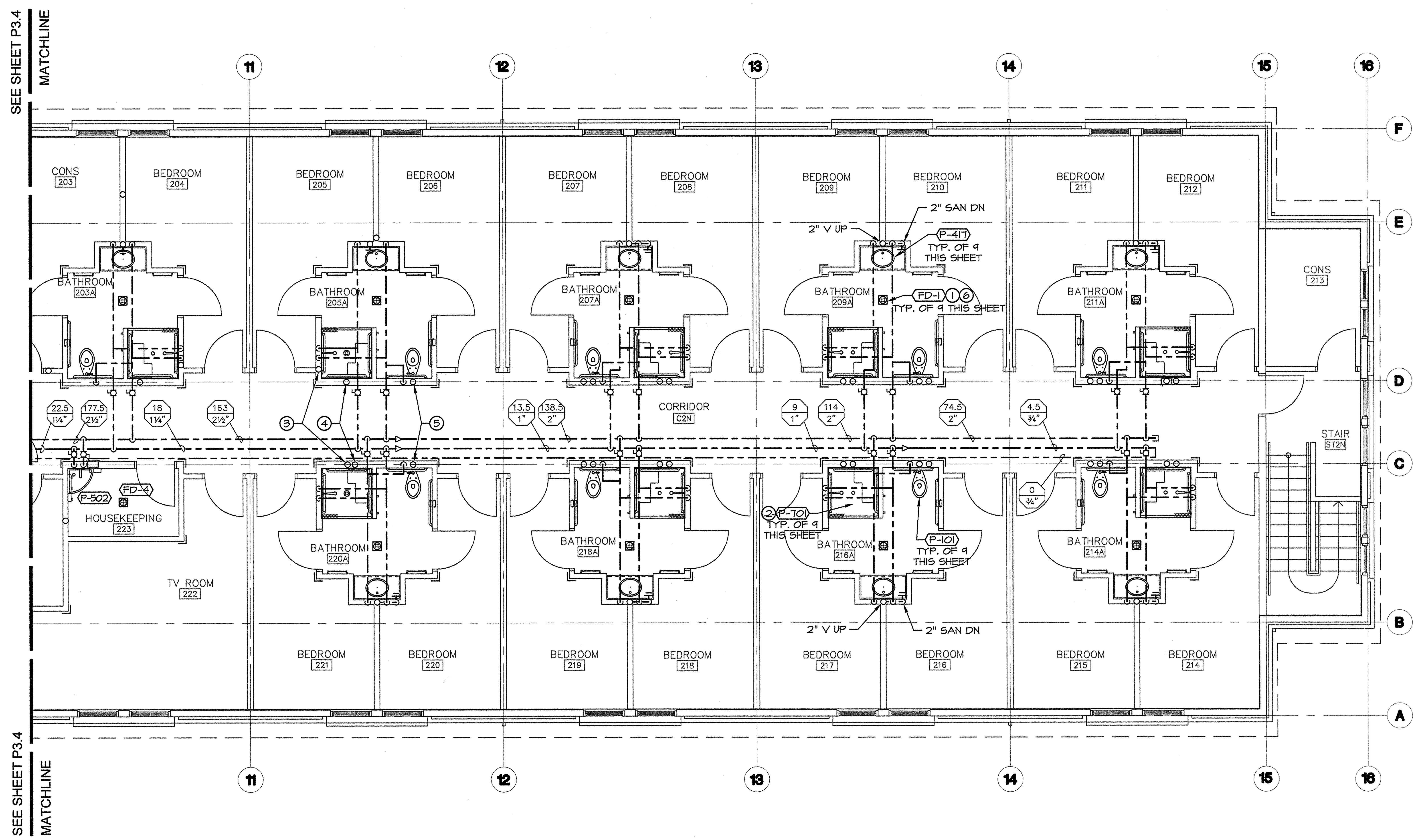

GENERAL NOTES

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KEYED NOTES

1. TRAP PRIMER TO BE INTEGRATED WITH FLUSH VALVE, SEE PLUMBING FIXTURE SCHEDULE.
2. SEE ARCHITECTURAL FOR SHOWER INSTALLATION.
3. 2" VENT UP.
4. 2" SANITARY DOWN AND 2" VENT UP.
5. 4" SANITARY DOWN AND 2" VENT UP.
6. IF FLOOR DRAIN POSITION INTERFERES WITH A STRUCTURAL MEMBER, LOCATE FLOOR DRAIN TOWARD THE WATER CLOSET SIDE OF THE STRUCTURAL MEMBER.

W S N E TRUE NORTH

1 PLUMBING 2ND FLOOR PLAN - NORTH

SCALE: 3/16" = 1'-0"

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DRAWING TITLE:
PLUMBING
2ND FLOOR PLAN - NORTH

FULLY SPRINKLERED FACILITY

PROJECT TITLE
REPLACE DOM BLDG. 203

DRAWN BY: JDG	DATE: 4 AUGUST 2014	DRAWING NO.: P3.5
CHECK BY: OJZ	VA PROJECT NO.: 692-339	DWG. 7 OF 12

US DEPARTMENT OF VETERANS AFFAIRS

GENERAL NOTES

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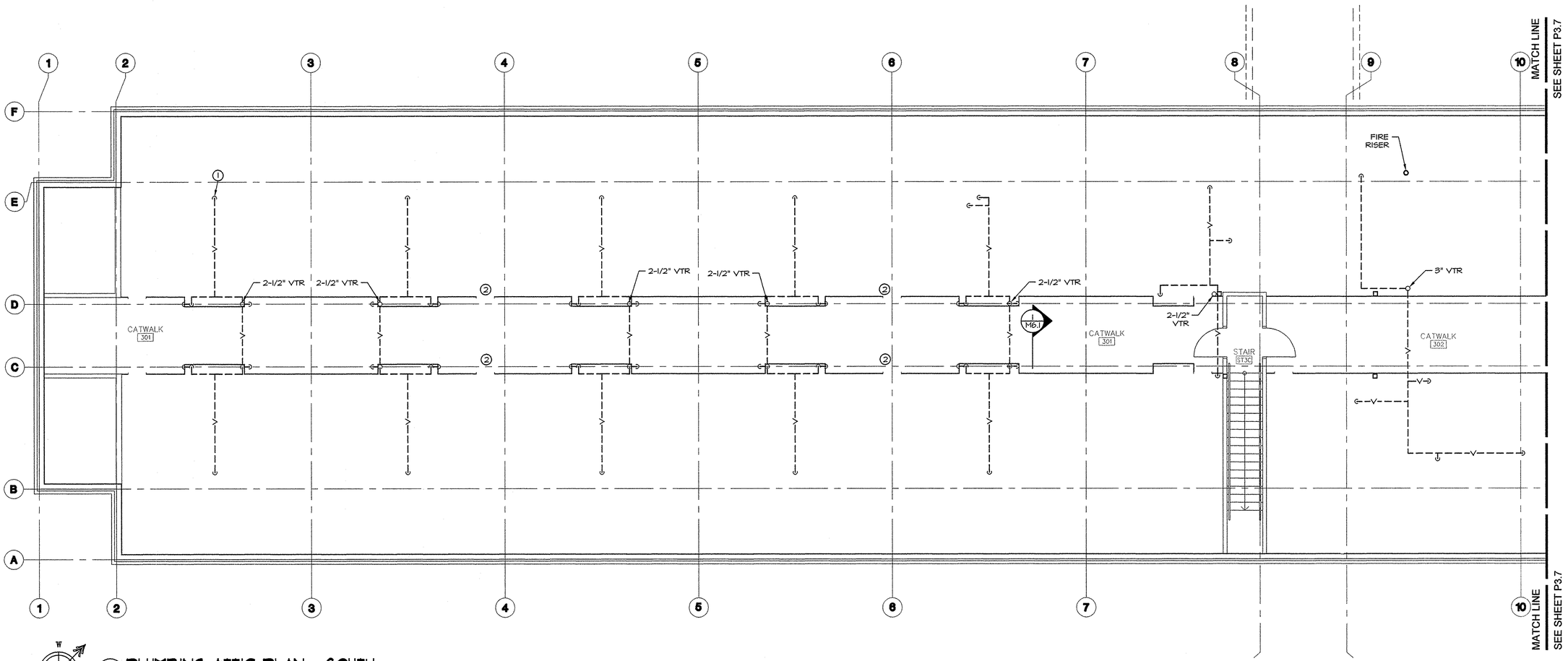
J. PVC OR ABS PIPING 3" OR LESS IN DIAMETER SHALL BE SUPPORTED EVERY 3' WHERE POLYICYNENE INSULATION IS INSTALLED.

K. PLUMBING VENTS THROUGH ROOF SHALL HAVE A 1/2" MIN. SPACE AROUND THE STACK WHERE POLYICYNENE INSULATION IS INSTALLED.

KEYED NOTES

(1) PIPE DOWN, SEE P3.4 FOR CONTINUATION, TYPICAL.

(2) ATTIC ACCESS LOCATION, KEEP CLEAR.



W S N E TRUE NORTH

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SCALE: 3/16" = 1'-0"

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OJZ	692-339	

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